UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Health Sciences
School of Health Care Sciences
Department Radiography

Healthcare educators' awareness, attitudes and practices of breast health: a mixed methods study.

Research dissertation submitted in fulfilment of the degree: Masters in Radiography: Diagnostic.

Author: Ursula Kruger

Student number: 97094324

Contact details:
Address: P.O. Box 3227, Vanderbijlpark, 1900
Cell: 082 859 1286
E-mail: krugerursula@yahoo.com

Supervisor: Ms PL Bresser

Date: 27 January 2020

TABLE OF CONTENT

LIST OF TABLES

LIST OF FIGURES

LIST OF ANNEXURES

LIST OF ABBREVIATIONS

Abbreviation	Meaning
BSE	Breast self-examination
CBE	Clinical breast examination
HBM	Health belief model
HR	Human resources
KAP	Knowledge, attitude and practises
SoHCS	School of Health Care Sciences
UP	University of Pretoria
WHO	World Health Organization

UNIVERSITY OF PRETORIA

DECLARATION OF ORIGINALITY

I, **Ursula Kruger (UP no 97094324),**

Declare that:

1. I understand what plagiarism is and am aware of the University's policy in this regard.

2. I declare that this Dissertation is my own original work. Where other people's work has been used (either from a printed source, Internet, or any other source), this has been properly acknowledged and referenced in accordance with departmental requirements.

3. I have not used work previously produced by another student or any other person to hand in as my own.

4. I have not allowed, and will not allow, anyone to copy my work with the intention of passing it off as his or her own work.

SIGNATURE OF STUDENT

Ursula Kruger

ACKNOWLEDGEMENTS

I would like to take this opportunity to thank the people without whom this study would not have been possible:

To my supervisor, without your ability to read me and to know when to use tough love and when to encourage I would really have given up. Your knowledge in research and the effort you made to understand my study and what it entailed, enabled you to enrich my knowledge and my study so much as a whole.

To my friends and family who needed to understand the many times I could not be there for them when the research deadlines needed to be met. Without the support and encouragement from you I would not have succeeded in completing this project.

To all the participants I met during the interviews who were not shy to entrust me with their story: without your willingness my study would not be possible. Thank you so much.

"Net uit Genade, nie uit verdienste nie"

ABSTRACT

Background

Breast cancer is a great health concern globally. According to the cancer registry of South Africa, it is the leading cause of death amongst females. The World Health Organisation (WHO) focuses on early detection of breast cancer to decrease the mortality rate and to improve the prognosis.

Breast self-examination (BSE) is recommended by the WHO as one of the screening methods for early detection of breast cancer. However, it has been found that BSE is still neglected by women all over the world including those who are assumed to have adequate knowledge of BSE and breast cancer screening tests. In some cultures, women are not encouraged to do BSE while some individuals cannot access mammograms or breast ultrasound on a regular basis. In higher education institutions in South Africa the staff complement is culturally diverse due to implementation of transformation within the Higher education sector. It is therefore important to investigate the healthcare educators' awareness, attitudes, and practises of breast health. Healthcare educators are role models to their students and therefore should set an example in their practising of breast health.

Aim

This research aims to describe and explain the awareness, attitude and practises of healthcare educators related to breast health at a selected University in South Africa.

Methods

An explanatory sequential mixed methods research design was used to describe and explain the awareness, attitudes, and practises of breast health among health care educators. For the quantitative aspect of the study participants completed an online questionnaire about breast health and after analysing the results, the qualitative aspect of the study followed with one on one semi-structured interviews that were conducted by the researcher.

Results

Quantitative aspect:

The results obtained from the quantitative aspect of the study indicated that many participants practice BSE and gained their knowledge of BSE from medical practitioners. The most noteworthy reason for delaying issues regarding breast health was lack of time. Participants who were married or in a relationship had higher awareness scores. Family history of breast and of any other type of cancer had a significant association with participants' attitude toward breast health. Some of the results from the quantitative aspect of the study were further elaborated on in the qualitative aspect of the study.

Qualitative aspect:

From the qualitative section of this study, it became evident that although participants indicated that breast health is important to them, they do not prioritise performing any of the screening tests available to them. The participants indicated that they do not have a proper or dedicated platform to speak to students about breast health, as it is usually not relevant to the subject that they are teaching.

Conclusion

Despite the positive attitude and awareness of breast health among healthcare educators, the practises of breast health are somewhat alarming. The main contributors to this being participants' unwillingness to prioritise breast health, healthcare educators' reluctance to discuss the importance of breast health with students and participants' personal beliefs of breast health, which leads them to be shy, fearful and embarrassed to practice breast health.

Keywords: Breast cancer, breast health practises, awareness, healthcare educators, attitudes

1 CHAPTER ONE - INTRODUCTION

1.1 INTRODUCTION

In this chapter the background and rationale for conducting this study is described. Background is given to support the rationale for the study, followed by the problem statement, aim and objectives of the study. The delimitations and assumptions are also described in detail.

1.2 BACKGROUND

Breast cancer is of great concern globally.[1] According to statistics from the World Health Organisation (WHO) in 2018, breast cancer was found to be the fifth most common cause of death due to cancer (627 000 deaths) worldwide.[1] It is estimated that Africa contributes 70% of all cancer related deaths worldwide. In South Africa, 21.78% of all diagnosed and documented cancers is breast cancer.[1] Cancer is amongst the diseases that are classified as non-communicable diseases by the WHO. According to statistics from the WHO non-communicable diseases contribute to 63% of deaths globally and 14 million people worldwide die prematurely before the age of 70. More than 48% of these premature deaths occur in low-and middle-income countries. Most of these premature deaths can be prevented when considering that most have the same risk factors in common. These risk factors include tobacco usage, inactivity, unhealthy eating habits and alcohol abuse.[1] In 2013, WHO launched a global action plan for the prevention and control of non-communicable diseases. In this action plan, there are several strategies to all involved partners worldwide with a target to reduce premature deaths by 25% by 2025. These strategies include: to generate new knowledge, create awareness and to use and develop tools for early diagnosis.[1]

The WHO recommends an early detection strategy for breast cancer. Breast self-examination (BSE) and screening mammography and/or breast ultrasound are recommended as part of this strategy to improve the prognosis and outcomes of patients.[1] There is contradictory evidence on the role of BSE in the early detection of breast cancer, with some researchers being of the opinion that BSE should

rather be replaced by breast awareness, whereby women are rather taught the risks for breast cancer and the early signs of breast cancer.[2-3] Furthermore, the breast awareness should complement the learning of BSE techniques and the importance of adhering to breast screening as recommended by the WHO.[3]

In Northern African countries like Morocco, Algeria, Tunisia, Libya and Egypt, breast cancer is the most common cancer amongst women, contributing to 25-35% of all female cancers.[4] In developing countries such as South Africa, there is limited mammography screening available in some areas and therefore BSE is recommended by the WHO, as it is free, available to all and quick to do. Clinical breast examination (CBE) is also a less expensive examination to do, but requires a consultation with a clinician and the skill of the clinician conducting the examination plays a vital role in the determination of abnormalities.[2] Despite BSE and CBE recommendations, more women in South Africa die due to breast cancer than any other type of cancer.[5] South African doctors have seen a disturbing rise in the incidence of breast cancer amongst black women under 35 years of age.[5] This is alarming as this age group was previously considered to be a low risk group for breast cancer.[5]

Studies have been conducted to test the knowledge and attitude of students and health care professionals in clinical practice with regard to BSE.[6-7] The studies indicate that there are moderate to high levels of knowledge with regard to breast screening but there is poor adherence to the recommended guidelines.[6-7] However, there are very few studies that focus on health care educators' awareness, attitude and practises of breast health.

There is ignorance about the breast cancer risk factors amongst women, although there are awareness campaigns in most countries.[8-10] Some of these awareness campaigns include that with certain national and international games the cricketers play in pink clothes. There is a pink drive in South Africa which is responsible for some of the awareness creation initiatives and there are awareness days in for different types of cancers. Although there are attempts

worldwide to create awareness the mortality rate of breast cancer is still alarmingly high.[1]

The School of Health Care Sciences (SoHCS) at the University of Pretoria has a diverse, multicultural staff complement, responsible for educating future healthcare professionals. This attributes to different cultures and levels of knowledge that affect practises, awareness and attitudes regarding breast health.[11-12] It has been proven that women trust information from health care workers therefore healthcare educators play a pivotal role in the education of health care workers. This highlights the fact that the practises, awareness and attitude of health care educators needs to be investigated as they play a pivotal role in the education of students and are also perceived to be their role models.

1.3 PROBLEM STATEMENT

Most literature on breast health is limited to exploring and describing the use of BSE and mammography as screening tools for breast cancer.[2,8,13] Studies about BSE have been conducted on students (young women) at Universities, thereby inherently excluding one of the risk factors for breast cancer which is age.[14-15] Furthermore, studies that focussed on the knowledge of BSE among healthcare workers/professionals did not include health care educators appointed in academic positions.[16] Since health care educators play a pivotal role in training the future health care professionals, it was deemed necessary to explore the awareness, attitudes and practises of these individuals towards breast health.[8]

Previous studies conducted largely focussed on knowledge, attitudes and beliefs towards the use of BSE and mammograms as screening tools for breast cancer. The concept of breast health including other available screening tests as well as the awareness of breast health seems to be limited. It has been stated that cultural beliefs can be a contributing factor to the awareness and attitude towards breast health among women.[11-12,17] Since health care educators currently in the Faculty of Health Sciences at the University of Pretoria (UP) comprise a multicultural and diverse Faculty, there may be contrasting views on the

importance of breast health. These views have a direct effect on the awareness, attitudes, and practises of breast health. It became apparent during informal discussions with colleagues in the SoHCS at UP that very few healthcare educators were engaging in BSE or regular screening for breast cancer. Although health and wellness programmes and information sessions are offered by the University, the importance of breast health in this setting is questionable.

1.4 RESEARCH QUESTION, AIM AND OBJECTIVES

From the problem statement above, the following research question was posed: What is the awareness, attitudes and practises related to breast health among healthcare educators in the Faculty of Health Sciences?

1.5 AIM

The aim of the study was to describe and explain the awareness, attitude, and practises of breast health amongst healthcare educators in the Faculty of Health Sciences.

1.6 OBJECTIVES:

The study aim was addressed through the following objectives:

- To describe and explain the practises of breast health among healthcare educators in the Faculty of Health Sciences.
- To investigate the awareness and attitudes of breast health among healthcare educators.
- To describe the relationship between demographic variables and awareness, attitude, and practises of breast health.

1.7 IMPORTANCE AND BENEFITS OF THE PROPOSED STUDY

Health care educators are responsible for the training of students to become competent health care professionals. It is important to investigate the awareness, attitude and practises related to breast health of these individuals if they are

expected to convince the individuals they teach the importance thereof.[5-6] If they are not convinced themselves, they may not be able to motivate or persuade the future generation of health care professionals responsible for patients.[8] Furthermore, in an era of transformation in South African higher education institutions, it is important to know whether there are preconceived attitudes, awareness and practises regarding breast health within such a diverse setting as it could influence dissemination of information, teaching and advocacy regarding breast health. The University of Pretoria invests in the health and wellness of its employees. Information from this study regarding breast health can inform further planning and opportunities to address the needs of health care educators regarding breast health, which may require further intervention.

1.8 DELIMITATIONS AND ASSUMPTIONS

The section below outlines the delimitations and assumptions pertinent to the study.

1.8.1 Delimitations

The study was delimited to the healthcare educators in the Faculty of Health Sciences at only one University. The number of participants is limited to the number of educators in the Faculty of Health Sciences, thus not being able to generalize the findings to all educators in the University of Pretoria or to health educators in other South African universities.

1.8.2 Assumptions

It was assumed that health care educators are aware of breast health and matters arising from breast problems since it is a primary concern of the WHO and in South Africa.[1] There are numerous campaigns in South Africa to raise breast cancer awareness. These campaigns include the pink drive, Aquelle has special mineral water bottles with pink labels for the duration of the campaign, Avon has a walkathon and during the year they sell special products to raise awareness and to donate to the Cansa fund. The South African Cricket players wear special pink outfits during certain games to raise cancer awareness. Sorbet beauty

products sell special lip care products in October of which some of the income is donated to cancer research. During October there are also campaigns where people hand out pink ribbons that symbolise breast cancer awareness in various shopping malls. In local magazines there are articles about breast cancer and various campaigns where people can join or purchase special products of which a part is then donated to cancer research and the pink drive. There are also numerous talks and interviews on the major radio stations and on television talk shows. Therefore, it is assumed that healthcare educators are exposed to some form of breast health advocacy.

1.8.3 Philosophical Assumptions

Philosophical assumptions may be seen as general philosophical orientations about the world and the nature of research that a researcher brings to the study. Creswell refers to assumptions as worldviews, terming it as a set of basic beliefs that guide action.[18]

a) Ontological assumption: Ontology refers to the different viewpoints about the existence of different entities of the world and assumptions about their reality. An intermediate ontology in the pragmatic paradigm is orientated towards solving practical problems in the real world rather than assumptions about the nature of knowledge. According to Hall, pragmatism is the most compatible paradigm to use in mixed methods research.[19] In a pure qualitative study, the researcher usually assumes a subjectivist viewpoint where the researcher seeks the reality from the participants' view about breast health. Objective reality does not include social mechanisms that can influence the participant's behaviour towards breast health therefore a subjectivist approach is appropriate. When taking into account that this was a mixed methods research design utilising both the qualitative and quantitative methodology, the researcher can assume an intermediate ontological position where both the objective (with the use of questionnaires) and subjective (interaction with the participants in the form of structured interviews) views may be used to obtain the full

information that is needed to explain the breast health phenomena amongst the Educators.[20]

b) Epistemological assumption: Epistemology is how the researcher determines reality by finding the relationship between the researcher and what is researched.[21] In mixed methods research, the pragmatic researcher approaches the phenomenon in a fusion of approaches.[21] The researcher can be objective therefore separating herself from her own beliefs and then be able to realise how participants really feel or think about things.[19] The researcher in this study can examine the practises and awareness of the educators as well as gain a better understanding of what influences their attitudes towards breast health when conducting the interviews.[20]

c) Methodological assumption: it is about finding out how the inquirer is going to obtain the answers to the research questions.[22] This entails finding the correct way to obtain information from the participants. In this study, the quantitative and qualitative aspect was conducted by means of an explanatory descriptive design. This design was appropriate as it enabled the researcher to seek in-depth information after completion of the questionnaires from the quantitative aspect of the study.[20] The quantitative aspect of the study offered data in numerical and statistical values which were examined by deductive processes to determine relationships between these values.[20] Thereafter the qualitative aspect was done by means of one-on-one interviews with open ended questions in a private setting, which enabled the participants to speak freely which provided more comprehensive information. To ensure that the participants' actual interview answers were valued, the researcher made use of the inductive process of reasoning.[22]

1.9 DEFINITION OF KEY TERMS

The following terms are defined and clarified as key concepts that are applicable to this study.

Breast health: The awareness and knowledge of breast cancer symptoms, risk factors and BSE as well as screening tests that are done for breast cancer this includes BSE, CBE, mammography, and breast ultrasound and in some instances also MRI if needed.

Healthcare educator: A person appointed at a higher academic institution for the purpose of teaching healthcare students. This includes full-time and part-time permanent educators involved in the lecturing or academic training of students.

Practises: "To do an activity regularly so that one can improve your skill."[23] In this context it would refer to the health care educator doing BSE, going for the other screening tests as referred to above and engaging in conversations regarding breast health.

Awareness: "Knowing that something exists and is important."[23] For this study it implies that the health care educator knows about the methods for breast cancer screening and recognises the importance thereof.

Attitude: "The way one behaves towards something that shows how one thinks and feels about something."[23] In this study it would refer to the way health care educators behave, think and feel towards breast health.

1.10 RESEARCH PROGRAMME OUTLINE

The outline of the research programme is as follows:

Chapter one – Introduction

In this chapter the reader has been introduced to the background, problem statement, research question and the rationale for conducting this study. The aim and objectives are stated which leads to the proposed benefits of the study. The key terms were also defined at the end of this chapter. The aim and objectives are stated which leads to the proposed benefits of the study. The key terms were also defined at the end of this chapter.

Chapter two – Literature review

This chapter gives a description of the literature that was found to support, argue and substantiate concepts used in this research. The literature was also used to assist the researcher in identifying the most appropriate research methodology and to adapt parts of the research tools to use in this research.

Chapter three – Methodology

This chapter describes the methods followed to address the objectives of the study. This included the methods used to collect the data, analyse the data and interpret the data. For the quantitative part of the study, online questionnaires were used for data collection and for the qualitative part individual interviews were conducted by the researcher. The interpretation of the findings of the study will also be described.

Chapter four – Results for the quantitative aspect of the study

To describe and explain the awareness, attitude and practises of breast health among health care educators in the Faculty of Health Sciences the answers from the questionnaires were presented and analysed. These results were presented in graphs and tables for clarification.

Chapter five – Results for the qualitative aspect of the study

In this chapter the qualitative results will be presented in the form of data from transcribed interviews which was analysed using the inductive reasoning process to identify codes that linked the data. Once patterns were found in the codes it

was then sorted into emerging themes. These themes are categorized and presented in this chapter.

Chapter six- Discussion, merging of results and interpretation

The aim of this chapter is to discuss the results of the quantitative and qualitative aspects of the study through merging of the data.

Chapter seven- Conclusion and recommendations

In this chapter, the study findings were summarised, and the research question is answered. The limitations of the study were presented and recommendations for further studies were made.

1.11 CONCLUSION

Breast health is a global concern and early detection can improve the outcome and prognosis of breast cancer. Health care educators play an important role in the education of health care workers and it is important to establish their awareness, attitude, and practises of breast health. Hence, the aim of this study was to describe and explain the health care educators' awareness, attitude, and practises of breast health. To achieve this aim, the literature review will follow in chapter two and in chapter three a complete description of the methodology will be given. Due to the mixed methodology nature of this study, the results will be presented in two separate chapters – chapters four and five. In chapter six the results are merged, discussed, and interpreted to ultimately reach the conclusion in chapter seven. Limitations of the study were presented, and recommendations were made based on the findings of this study at the end of this dissertation.

2 CHAPTER TWO - LITERATURE REVIEW

The purpose of the literature review was to review previous studies to summarise and critically evaluate the problem being investigated. The literature review supports the aim of this study and informs the methodology. Literature on breast cancer and breast health knowledge, attitude, and practise studies were reviewed. In the next section, different imaging options for breast health screening are discussed, the risk factors for breast cancer and breast cancer screening practises will be described. The literature relating to cultural beliefs and breast health will also be reviewed. Studies relating to healthcare educators will also be discussed.

2.1 INTRODUCTION

This literature review aims to interrogate studies that investigated the awareness, attitudes and practises of breast health since the mortality rate is still too high.[1] Most of the literature that the researcher could find, seemed to focus on health care workers in the clinical setting and students of universities, but not on the health care educators themselves. Therefore, the investigation is warranted to study the educators' awareness, attitudes, and practises regarding breast health.

2.2 BREAST HEALTH

Breast cancer is the leading cancer in women in developing and developed countries in the world.[1] The most important strategy from the WHO is early detection of breast cancer in order to improve the outcome and survival rates. Breast health encompasses so much more than BSE, CBE, mammography and ultrasound and yet most literature addresses the efficiency of BSE as a screening method for breast cancer, the way BSE is performed and education of BSE skills.[3,24-26] The focus on BSE is limited to one element of overall breast health to decrease the mortality rate of breast cancer. The efficacy of BSE in preventing breast cancer and lowering the breast cancer mortality rate is yet to be proven.[13]

2.2.1 Imaging used in breast cancer screening

In recent studies it was noted that there was a steady decline in mortality rates of breast cancer which could be attributed to increased mammography screening and improved therapies.[26] There are different breast imaging options which include: conventional mammography (where films are still used), digital mammography and ultrasound. In the last few years technology has rapidly advanced to also include digital breast tomosynthesis (as part of mammography), screening (automated) ultrasound and breast MRI.[26] This advanced imaging technology enables improved cancer detection over mammography alone but is not yet offered in all screening centres. In most cases these advanced imaging options are more expensive than mammography alone and are not always endorsed by health insurance companies as a screening tool.[27] It should then be noted that not all women are benefitting from these advanced imaging options, as some vulnerable populations still struggle with barriers to screening and delayed diagnosis which leads to presenting for care at an advanced stage of the disease. These vulnerable populations include those from a low socioeconomic background, those living in rural areas and racial and ethnic minorities. These women still attribute to a higher incidence of the disease and mortality.[27]

Mammography is the most effective screening method to detect breast cancer. In many developing countries it is too expensive and is subsequently used as a diagnostic tool only. Therefore, the use of BSE and CBE are recommended in developing countries as screening tools.[1,28] The importance of breast health has been overshadowed by the physical examination methods (BSE and CBE). It is clear that the mortality rate of breast cancer is still high despite all the technological advancements.[1] Although research has been done about the technique of breast self-examination and screening methods, it can be questioned whether the attitude regarding breast health is influencing the mortality rate of breast cancer.[29]

According to a study done by Lagerlund *et al,* the main reasons why participants in their study did not participate in mammography was out of pocket cost and

emotional barriers. These factors in addition to the factors described by the health belief model which are: the effect of barriers, benefits and worry can explain the reasons why participants in that study did not participate in mammography screening practises as recommended.[29]

In the United States there are laws that were initiated in April 2017 that require imaging facilities to inform patients if they have dense breast tissue as it is an increased risk for breast cancer.[27] This might lead to an increased demand for facilities to be able to provide patients with the advanced imaging technologies that were described in 2.2.1 with extra financial burdens or out- of- pocket expenses to patients who might require a breast tomosynthesis or MRI.

The American College of Radiology Appropriateness Criteria (ACR) are evidence-based guidelines for specific clinical conditions that are reviewed annually by a multi-disciplinary panel. According to these guidelines, recommendations for breast cancer screening are based on risk factors. An average risk woman has a less than 15% lifetime risk of breast cancer, intermedia risk women are women with a personal history of breast cancer, lobular neoplasia, atypical ductal hyperplasia, or a 15% - 20% lifetime risk of breast cancer. High risk women are women with a BRCA gene mutation and their untested first-level family members, women who had chest radiation between 10 – 30 years of age and women with 20% or greater lifetime risk of breast cancer. According to this, it is suggested that average risk women need to do screening mammography and/ or digital breast tomosynthesis starting at age 40. Ultrasound can be used in addition to mammography in women with dense breast tissue. For intermediate risk women, ultrasound or MRI may be advised in addition to mammography depending on specific risk factors. For women with a family history of breast cancer, annual mammography is recommended starting 10 years earlier than the affected family member was diagnosed but not younger than 30 years of age. Annual MRI screening is also recommended for high risk women in addition to mammography.[30] Mammography, used as a screening tool, is in line with the recommendations of WHO for early detection of breast cancer.[1]

2.2.2 Breast cancer knowledge

Various studies have been conducted to determine the knowledge, attitudes and practises of BSE and breast cancer risk factors amongst different population groups.[11-12,29,31-32] In a study by Erdem *et al* amongst health care workers in Turkey, it was found that there was a high level of knowledge of BSE, but it was not reflected in their attitudes and practises of breast health.[6] The health care workers are regarded as role models for their society and have the power and ability to influence other people's attitude and practises towards breast health. Furthermore, health can be improved and morbidity and mortality can be reduced in a society where the health care workers play an active role in the education of society.[6] This was supported by a study conducted on teachers in Ethiopia, which concluded that they are also regarded as role models and can play a role in the education of students and the community. The study investigated four major predictors for practising BSE which are knowledge, perceived susceptibility, perceived severity and perceived benefit which are derived from the health belief model.[6,26,29]

In a study by Kotepui *et al*, the main objective was to compare the knowledge of breast screening tests between lecturers, laboratory scientists, general officers and temporary workers. It was a small quantitative survey which found that all the personnel had good knowledge about screening tests, but some misconceptions were highlighted among knowledge questions. There was no significant difference in mean knowledge between the lecturers, laboratory scientists and general officers. An important finding in this study was that most people get their information from medical personnel which again highlights the fact that health care staff play a significant role in providing information about health-related matters.[16] The knowledge about breast health was further affirmed by Nde *et al*.[7]

2.2.3 Risk factors for breast cancer

According to the WHO, the risk factors for breast cancer are: family history, no children, no breast feeding, age of first menstrual period younger than 12 years

old, menopause age above 55 years, long-term use of contraceptives, being overweight, increased age, alcohol usage and lack of exercise.[1]

In most of the studies that the researcher could find, medical personnel and healthcare professionals' knowledge about breast cancer and the risk factors were investigated. In a study done by Ramakant *et al,* there was a survey done to determine breast cancer awareness among medical, paramedical and the general population in north India. This study concluded that the breast cancer knowledge and awareness was more among the medical and paramedical groups compared to non-medical women. Furthermore the technique of BSE and the attitude to prevention and early detection, was sub-optimal among all three groups.[9] Similarly, in a study done by Kumar *et al* amongst health care professionals at a hospital in Karachi, Pakistan, the knowledge about risk factors was investigated and their study showed that the majority knew most of the risk factors for breast cancer, that said a third of their respondents were not aware that obesity is a risk factor for breast cancer. Furthermore, this study found that knowledge of risk factors for breast cancer was significantly higher for students training as healthcare professionals compared to the other students. This can be associated with the fact that those students had been recently taught about it.[33]

In contrast to the above studies, a study done by Soyer *et al,* the knowledge among primary healthcare nurses of the risk factors associated with breast cancer was determined with a pre-test and then an education programme was done and then they were re-tested. This significantly increased the knowledge of the risk factors. Risk factors least known by participants was first menstrual age younger than 12, long use of contraceptives, menopausal age above 55 and being overweight.[8]

2.3 PERCEPTION AS ATTITUDE FACTORS

In most of the accessible literature there were limitations in the way the attitude of participants could be tested. There was mostly mention of attitude, but in many studies there were no direct questions to the participants about their attitude

towards breast health.[6,15,17] In a study by Alwan *et al* amongst women at a University in Iraq, it was found that their morbid view about breast cancer could influence their attitude towards BSE and other early detection screening tests. The participants indicated a positive attitude towards learning techniques for breast cancer screening, which led the researchers to the conclusion that knowledge and practises can be improved if awareness of health issues was raised.[14] In two separate studies, one by Lagerlund *et al* in Sweden and one by Pons – Viguès *et al* in Spain, they mentioned perceived benefits, barriers and vulnerability to breast cancer together with the attitude of the participants.[29,31] Lagerlund *et al* found that there was a relationship between worry and going for a mammogram, which then influences the woman's decision whether to practise a screening test or not.[29] The study by Pons-Viguès showed that social class, urban vs rural setting and cultural differences influenced the women's attitude and knowledge negatively and that some showed fewer perceived benefits and more barriers to screening tests.[31] In a study done on undergraduate students in Cameroon by Nde *et al*, they included seven questions in which the respondents could rate their attitudes towards breast cancer and BSE but the focus was mainly on BSE and thus the study only commented on the overall attitude towards BSE which was concluded to be moderate.[7]

Furthermore, the attitude towards screening tests was positive but it was not reflected in the women's practises thereof. It was found that there was a superstition and disbelief among women thinking that they cannot get breast cancer.[17] In another study that was done amongst different cultural groups and immigrants, the difference in practise of different socio-economic classes and employment showed that many couldn't afford breast screening examinations. In a large quantitative study done in Saudi Arabia with 10 735 participants, only 1 135 were over the age of 50. This study found that the breast screening practises were poor – 92% of women between the ages of 50-72 had never had a mammogram, although it was offered as a free screening tool. The study recommended that a qualitative study should be conducted to seek the barriers that are preventing women to go for this life saving screening test.[34]

2.4 HEALTH BELIEF MODEL

The health belief model (HBM) was developed in the 1950s by the US Public Health Service to try to explain why certain screening programmes were unsuccessful. According to the HBM, health behaviour is influenced by personal beliefs or perceptions of a disease and the strategies or treatments available to decrease the occurrence of the disease. There are four main concepts that were described by this model, which can be viewed individually or as a combination, which included: perceived seriousness, perceived susceptibility or risk, perceived benefits, and perceived barriers of change.[26]

Perceived seriousness refers to a person's perception of how serious the disease is, which is mostly based on information that is available and the interpretation of how it can affect that person. Perceived risk is the one perception that enables people to make amendments to their lives when the risk is perceived to be high. This perception could be added to perceived seriousness which then becomes a perceived threat and could lead to people making health behavioural changes. Perceived benefits refer to whether a person believes there is value to adapting a new health behaviour like doing screening tests. Perceived barriers to change was the most difficult barrier to overcome as a person needs to evaluate their own hurdles that prevent them from making the necessary changes to their old behaviour and to adopt a new behaviour. Usually a person needs to be able to justify the new behaviour by believing that the benefits of the new behaviour will outweigh the consequences when continuing their old behaviour.[35]

Breast cancer is a serious disease and is an obvious threat to all women, which should then be a motivator for a person to want to participate in the early detection thereof, but the barriers to performing these tests in many cases outweigh the actual threat itself. According to Umeh *et al* the barriers to performing BSE include difficulty to embark on a journey to start a new habit, fear of not being able to perform BSE correctly, being able to make the time or to forfeit something to be able to do it and to be embarrassed about doing it.[36] In a study by Muthoni and Miller, the Health Belief Model was used to try to explain their scattered findings

regarding Kenyan women's knowledge and awareness of the causes, symptoms and early detection of breast cancer.[37]

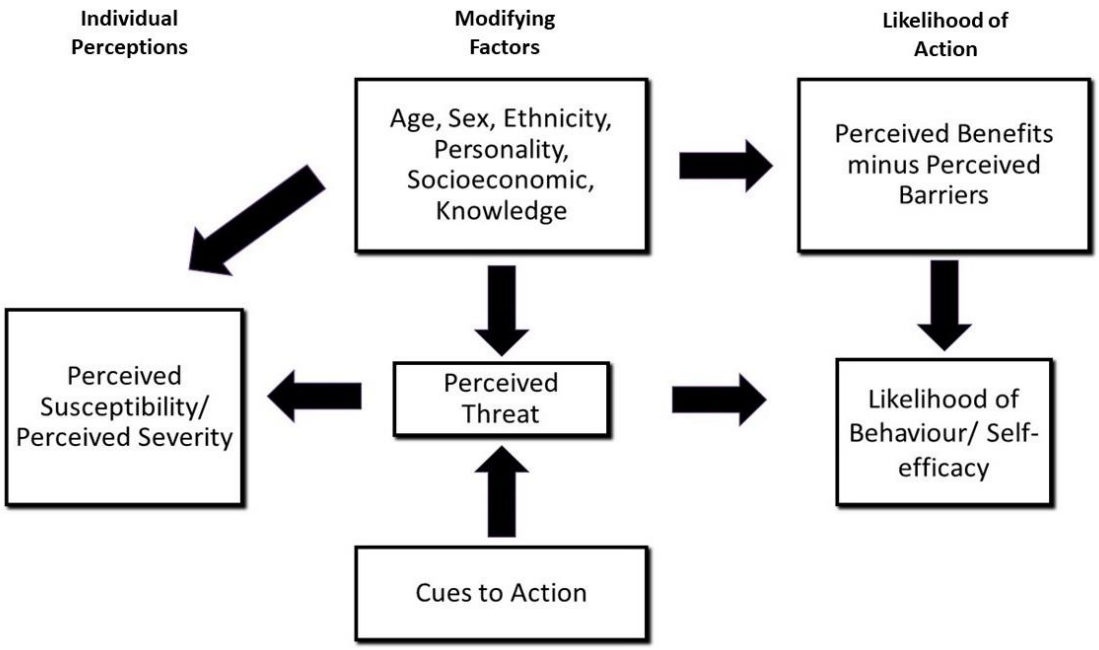


Figure 2.1: Health Belief Model

Adapted from Health Belief Model by Rosenstock *et al*.[35]

In the HBM it is also important to note the patient's enabling factors that include patient's knowledge, health literacy and cultural beliefs as determinants of health behaviours.[27] The use of the HBM can increase understanding of the health beliefs that play a role in the women's BSE practises. The HBM can be used in health protective programmes to increase breast cancer screening rates.[38] According to O'Donnell *et al,* the HBM can be used to calculate populations' preventative healthcare behaviour including clinic and physician consultations and compliance to suggested medical regimes. It can also predict the readiness to take up a new health behaviour according to the benefit outweighing the cost. Their study found that psychological distress had the most significant negative association with mammography.[39]

Lagerlund *et al,* concluded in their study that frequency of mammography screening can be increased by improving breast cancer awareness and

minimizing some of the modifiable barriers. The importance of a good first mammogram experience is essential to avoid a negative attitude and subsequent future absence to mammography screening.[29,40] An invitation letter containing information about mammography and some of the most general misconceptions about mammography should be sent out to patients to try to minimize some of the concerns and worry they might have.[29]

2.5 PERCEIVED BARRIERS TO MAMMOGRAPHY SCREENING

In a study done by Davis *et al* it was noted that patients who had a discussion with their physician about breast screening and understood the importance thereof, were more likely to go for regular screening exams.[41] Studies that were previously done on patients' experience of mammography highlighted a few possible causes for patients not adhering to screening guidelines these include pain, embarrassment, anxiety and interaction with the mammography technologist and Radiologist. In addition to waiting time for an appointment, time spent with the mammography technologist and information given by the mammography technologist.[41] This was also highlighted by Lagerlund *et al,* that found it beneficial if a patient received an invitation letter from their general practitioner that addressed their anxiety causing misconceptions.[29]

In a study done by Tastan *et al,* it was found that women with a family history of breast cancer were more informed and had more awareness of breast cancer screening than other women. These studies also showed that women with a family history of breast cancer were more inclined to perform BSE regularly.[42] In a study done by Kaltsa *et al,* it was found that women who experienced cancer or the treatment thereof by means of a family member or close friend had a different perception of the disease and the early detection thereof. These women became fearful of developing the disease after witnessing the death of a friend or a relative.[43]

2.6 CULTURAL BELIEFS

In a study done by Muthoni and Miller amongst rural and urban Kenyan women, it was found that the knowledge of breast cancer was significantly better among urban middle-income women and that the majority of rural participants showed a lack in basic knowledge about breast cancer.[37] It was also found that more emphasis was placed on other health issues like family planning, HIV and Malaria rather than non-communicable diseases like cancer, diabetes, and heart disease. Most women in this study only thought that breast cancer is fatal and not actually treatable. These women also thought it unnecessary to go for check-ups when they are not feeling sick. Furthermore, in this study, husbands were mentioned as a barrier to early detection practises, as these women would not tell their husbands that they are ill, in order not to get accused of endangering the husband's health. In some cases, it was also mentioned that their husbands did not want the wives to be educated even about breast cancer, therefore they are not encouraged to attend information sessions or the hospital for general check-ups. Many women in sub-Saharan Africa only seek medical attention when their cancer is very advanced, therefore creating a higher mortality rate. Mammography screening is also not available to the majority of the population.[37]

According to a study done by Lee, to investigate the cultural factors that influence breast and cervical cancer screening amongst Korean American women, it was found that their cultural beliefs and attitudes determine their cancer screening frequencies.[44] The researcher divided cultural factors relating to breast screening into five different aspects. These aspects included: family, embarrassment, preventative health orientation, acculturation, and fatalism. Family related factors were included that Korean American women with Caucasian husbands were participating in CBE and BSE and the women with Korean American husbands were less likely to participate. Family members can either prevent women from going for screening due to the fact that they need to care for the family members and do not have time to go or family members can encourage these women to go for screening and assist in language barriers if any exists. This then means that these family members need to take time off to assist the elderly women to go

for their breast cancer screening. Embarrassment was a major factor for Korean Asian women as they felt embarrassed to discuss these intimate topics with others and do not want a male physician to examine these private areas. Since there are not always symptoms, these women are hesitant to go for preventative orientation. Acculturation in this study refers to English proficiency and the length of residency in the US. One of the most prevalently mentioned factors for Korean Asian women is their fatalistic attitude, which also relates to their beliefs. This means that they regard it as God's plan if they have cancer and therefore do not need screening or treatment. However, there was one study that found that some Korean Asian women do recognise benefits of preventative healthcare for instance living a healthy lifestyle.[44]

In the Arabic culture, amongst low level social and economic conditions, the Destiny approach becomes a prevalent belief. This means that these women believe that when you contract a disease it means that it is your destiny.[34] In a study done on Lebanese women about their mammography screening patterns, it was found that husbands play a role in motivating or preventing women from screening access.[45] It was found that more than two thirds of husbands were encouraging their spouses which in addition to educational level were factors determining the women's participation in breast cancer screening activities in Jordan. It was found that spousal support was the only variant that had an effect on annual screening behaviour. Cultural views can be attributable to late detection of breast cancer in many African and Asian countries.[45]

2.7 HEALTH CARE EDUCATORS

Health care educators can have an influence on breast health if they consider that they are role models to their students and that they teach students in the health care faculty, which places them eventually indirectly in contact with patients. Their attitude towards breast health can influence the way they teach their students which in turn influences the way that student can advocate breast health to their patients.[15]

In a study done in Ethiopia, teachers are regarded as role models and not only educators who can do valuable health promotions for students and the rest of the community. This study concluded that healthcare workers should encourage breast health education programmes for schools and the community by providing information on the severity of the disease and the benefit of BSE.[26] In a similar study done by Kaltsa *et al,* it was indicated that patients trust their health practitioners to help them to make informed decisions about mammography screening tests. This then led to these women being more adherent to early detection examinations.[43] In a study done by Horsley *et al,* similarities were identified as this study outlined the importance of baseline mammography and also found that the participants indicated that that the largest portion of their knowledge was gained from their primary health care providers.[46] This was also corroborated by Ceber *et al,* whose study recommended that health protective programmes should be based on the health belief model and be carried out by female academics who are responsible for raising awareness in the community. Ceber *et al* 's recommendations could result in more frequent breast cancer screening practises.[38]

There is a need for practitioners to use the most up to date information regarding these screening tests because health staff are regarded to play significant roles in providing information about the latest technology that is used in imaging and the benefit-risk ratio of these imaging modalities.[7,16] Many patients are concerned about the radiation dose and this might affect their decision in going for a mammography, thus delaying their screening test which can in lead to late diagnosis of cancer. It is important for the patient to make an informed decision whether to do these screening tests.[47]

There is also literature that reviews over-diagnosis by mammography screening, meaning that some cancers may never have been detected if not for mammography screening and that these cancers would not have caused the patient any harm in their lifetime.[30]

2.8 REVIEW OF METHODS USED IN SIMILAR STUDIES

Most of the accessible literature used were studies on knowledge, attitude and practise (KAP) or health beliefs of nurses or students of breast screening practises of BSE or mammography.[6-7,14-17] In these studies, the same type of questions was used and are cross- sectional, descriptive quantitative studies. There were no in-depth studies done to determine an answer to why women do not participate in breast health practises. In most cases the sample sizes were small, and the target age group was too young.[6-7,14,16,26] This means that many of the participants did not have a lot of risk factors applicable to them. No studies could be found that were specifically targeting the KAP of health care educators at Universities. In some literature, it is recommended that a qualitative study should follow up on the quantitative studies to gain in-depth knowledge about why the practises of breast screening is so poor although the women have the knowledge.[6] Therefore, a mixed method methodology is needed to find the reasons why women who have the knowledge, do not participate in breast health screening practises like BSE and mammography. Furthermore, a better understanding is needed about the perceived barriers that prevent women from practising breast health.

2.9 SUMMARY OF LITERATURE REVIEW

Breast cancer is the leading cancer in developed and developing countries.[1] In order to improve patient outcomes and reduce mortality rates, the WHO implemented the early detection strategy.[1] This strategy can be adhered to with the use of BSE, CBE and imaging modalities like mammography and ultrasound, which enables improved cancer detection.[24] Knowledge of breast cancer, risk factors associated with breast cancer and BSE is found to be good in higher level educated population groups. However the practises and attitude regarding breast health is not in line with knowledge thereof.[6] Many studies found that participation in mammography is poor.[25,28] Some studies have shown that a patient's experience of previous mammography examinations prevented them from returning for follow-up mammography. Other possible causes were pain, embarrassment, and anxiety.[41] The HBM can be used to predict practising of BSE

and other screening tests. According to the HBM these predictors include: perceived seriousness, perceived susceptibility or risk, perceived benefits and perceived benefits of change.[35]

In studies done for cultural beliefs regarding breast health, it was found that in rural Kenyan communities the emphasis is not on breast health but rather on family planning, HIV and Malaria. Amongst Kenyan women it was also found that their husbands hindered them from going for screening tests as they believed that if they are sick, it can also influence the husband's health.[37] The opposite was true for Lebanese women as it was found that their husbands are incredibly supportive of breast screening tests. It was also found that their level of education had a greater role in these women regarding screening tests.[45] Korean women are not adhering to breast screening tests as they feel embarrassed as it is a private area that they do not discuss or want examined by any other people. It was also found amongst traditional Korean women as opposed to Korean women married to Caucasian men that the traditional Korean women adhere less to breast screening tests.[44]

Health care workers play a pivotal role in the training of students and have an active role in the community to advocate breast health. Health care workers are also being regarded as role models in their community and can significantly improve mortality and morbidity by educating the community and are able to influence peoples' attitude and practises towards breast health practises.[6,16]

In most of the accessible literature, there are limitations to testing the attitude of participants in most studies' knowledge, attitude and practises are mentioned with most emphasis on knowledge and practises. Very few studies include questions about the attitude of participants towards breast health.[7,13,15]

2.10 CONCLUSION

The literature as discussed above indicated that there is no in-depth knowledge about women's attitude towards breast health and that there is not always an

explanation for the lack of practicing breast screening. In the chapters to follow, some of these aspects will be investigated.

3 CHAPTER THREE – STUDY DESIGN AND METHODOLOGY

3.1 INTRODUCTION

In the last section of chapter two, the literature on research methodology was reviewed. It was found that most studies focussing on breast health make use of a qualitative design to explore knowledge, attitudes, and practises of breast health. However, some studies make use of a descriptive quantitative design to determine the health beliefs of nurses/ students of breast screening practises such as BSE or mammography. In some literature, it is recommended that a qualitative study should follow up on the quantitative studies to gain in-depth knowledge about the phenomenon in question. The aim of the current study was to describe and explain the awareness, attitude, and practises of breast health amongst healthcare educators in the Faculty of Health Sciences and hence, a mixed method study design was chosen to enable the researcher to obtain in depth answers from participants relating to their breast health.

A mixed methods methodology was identified to be able to explain and describe the practises of breast health and to investigate the awareness and attitudes of breast health among healthcare educators. This chapter presents the research design, methods and materials used in the study.

3.2 STUDY DESIGN

An explanatory sequential mixed methods study design was used with merging of the quantitative and qualitative data, with equal emphasis on the quantitative and qualitative aspects of the study.[48] A general definition of mixed methods is generated by Johnson *et al* as being a type of research that combines elements of quantitative and qualitative research approaches for the broad purpose of breadth and depth of understanding and corroboration.[49] In this study design the data was collected in two phases: the researcher first collected the quantitative data, analysed the results and then used the results to plan the second phase, the qualitative data collection. This study design was appropriate because the awareness, attitudes and practises of health care educators should move beyond

mere description of the current situation to seek the underlying factors influencing the described awareness, attitudes and practises. Figure 3.1 below depicts the methodological underpinnings of this study.

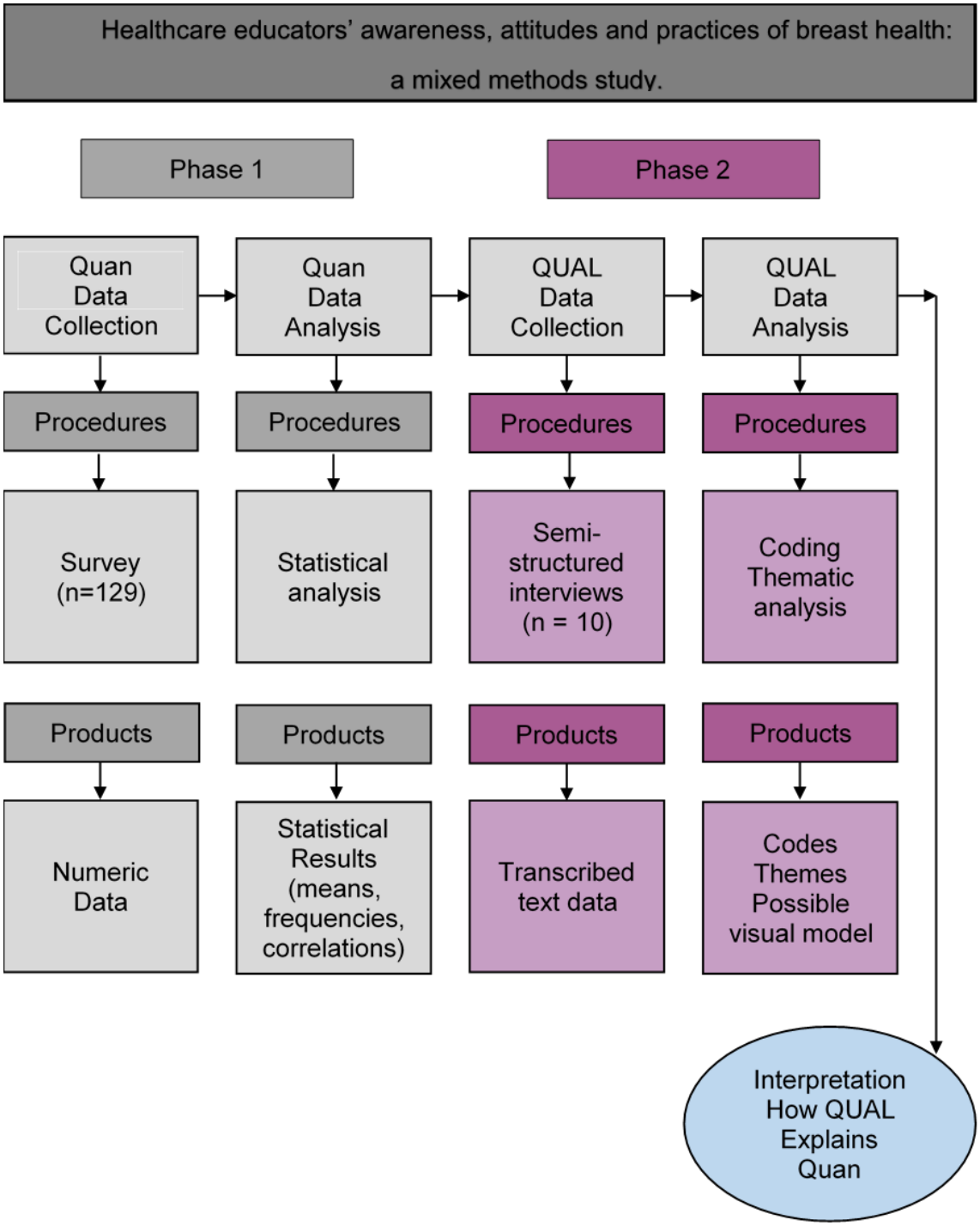


Figure 3.1: Mixed method methodology adapted from Creswell *et al*.[48]

3.3 STUDY SETTING

The quantitative aspect of the study was conducted in the entire Faculty of Health Sciences of the University of Pretoria. The Faculty of Health Sciences comprises of four schools namely: The School of Medicine, School of Dentistry, school of Health systems and Public Health and the School of Healthcare Sciences. The School of Healthcare Sciences comprises of the Departments of Radiography, Human Nutrition, Physiotherapy, Occupational therapy, and Nursing. There were approximately 512 permanent and joint appointees in the Faculty of Health Sciences at the time of data collection. For the qualitative part of the study, volunteers who indicated in the questionnaire that they were willing to participate in the interview (and thus waive anonymity of responses) were contacted by the researcher via email.

3.4 STUDY POPULATION AND SAMPLING

3.4.1 Study population

The study population included all the healthcare educators in the Faculty of Health Sciences at the University of Pretoria. As indicated in the preceding paragraph there were about 512 permanent and joint appointees at the time of data collection.

3.4.2 Sampling strategies

Sampling is to select a group of people, events or behaviours to conduct a study with.[50]

Complete sampling was used for the quantitative aspect of the study since questionnaires were electronically distributed to the entire Faculty of Health Sciences' educators.

For the qualitative part of the study purposive sampling was used. This sampling method was based on participants who indicated in the questionnaire that they are willing to participate in the interviews. Appointments were made with the individuals and one- on – one interviews were conducted by the researcher.

3.4.3 Sample size

The sample size for the quantitative aspect of the study was limited to the available health care educators in the Faculty of Health Sciences. In total there were 512 questionnaires sent out via email. Of these, there were three emails that failed, 68 emails bounced back, and 103 email addresses were duplicated. From the 512 questionnaires that were sent out 131 were received back but two were incomplete, which then closed the total to 129 questionnaires received back and completed. This means the response rate was 25,19%, which is lower than the recommended 30% response rate for surveys.[51]

For the qualitative aspect of the study healthcare educators from the Faculty of Health Sciences were invited to participate in the interviews through the last question of the questionnaire. In that last question participants indicated whether they were willing to participate in an interview or not. (Annexure A)

Purposive sampling was used to gain a deeper understanding of the participants' awareness, attitudes, and practises of breast health to explain the findings from the quantitative part of the study. The qualitative aspect of this mixed method study was explanatory in nature. Therefore, the participants were selected to seek explanations to the findings in the quantitative aspect of the study. By using this method the researcher was able to gather richer information from the participants.[18] The following inclusion criteria was used:

- Participants at the recommended age for a mammogram and never had a mammogram.

  Or
- Those participants who indicated that it is not important to talk to their students about breast health.

  Or
- Participants who indicated that they delay issues regarding their breast health.

Participants who indicated that they were not available for interview were excluded from the qualitative aspect of the study. Sixteen participants met the inclusion criteria where a total of ten semi-structured interviews were conducted until data saturation was reached.

3.5 DATA COLLECTION

For the quantitative aspect of this study, data was collected using a structured self-administered questionnaire (Annexure A). For the qualitative aspect of this study semi-structured interviews were conducted (Annexure B and C).

3.5.1 Measurement tools

Questions used for both the quantitative and qualitative phase of the study were derived and adapted from previous studies with a focus on knowledge, attitude and practises regarding BSE and mammography as screening tools.[24,32] Section A of the questionnaire addressed the demographics of the participants. Section B consisted of questions about practises, awareness, and attitude of breast health in which the participant was able to select more than one appropriate answer. This section also included the awareness of the risk factors for breast cancer. There was also a section that addressed practises, awareness, and attitude of breast health using a Likert scale ranging from strongly disagree, to strongly agree (1-5). In addition to this, certain questions aimed at establishing frequencies of practises were included in Section C.

3.5.2 Quantitative measurement tool

For the quantitative aspect of the study a self-administered, online questionnaire was designed using relevant literature and adapting the questions to be applicable for the proposed research. A similar study to this research was done by Hailey and Bradford about BSE and mammography among University staff in Southern Mississippi. The study was used as a guideline for drafting the tool for this research but because it was mainly focussed on BSE and mammography more questions were needed for the current study.[25] The KAP study on healthcare workers in by Erdem *et al* used a questionnaire from which some

questions were adapted for the current study. The section on sociodemographic details, frequency of practising BSE and attitude towards BSE was adapted to be more specific to healthcare educators and was adopted in this study.[6]

3.5.3 Piloting of questionnaire

For the quantitative aspect of the study, the questionnaire was refined by testing the questionnaire first with independent participants for face and content validity. These participants were five healthcare professionals in the mammography clinical department of Steve Biko Academic Hospital. These healthcare professionals in the clinical department are involved in student training and are involved with the students in work integrated learning. They therefore play a role in student education to a limited extent. They also possess the relevant clinical knowledge and background to assess the content and validity of the questions to be posed in the questionnaire. The questionnaire was scrutinized by them for content clarity, ease of understanding and redundancy of questions and recommendations for additional content was allowed. Input was sought for any omissions or duplication of information and to determine the maximum time that was needed to complete the questionnaire. Clarity and understandability of the informed consent document was commented on. Recommendations and suggestions by the individuals who scrutinized the questionnaire and informed consent forms were considered and implemented prior to the questionnaire being uploaded to the online survey platform. Recommendations to improve the questionnaire was also sought from the biostatistician and were applied prior to finalisation of the draft questionnaire that is used for refinement.

3.5.4 Qualitative measurement tool

For the qualitative aspect of the study, a semi-structured interview was conducted by the researcher. The interviews were conducted in privacy in a closed room or office which was convenient for the participant. An interview schedule can be seen in Annexure C which included the questions that were used during each interview with associated probing questions where clarification or elaboration was required from the participant. From the initial interview schedule the primary

questions were still appropriate. The researcher identified some issues pertinent to the original questions. Some of the initial probing questions were adjusted according to a brief preliminary view of the questionnaire results from the quantitative aspect of the study. Changes were made to clarify some of the questions to obtain in-depth information.

3.5.5 Data collection process

Questionnaires were completed by all health care educators in the Faculty of Health Sciences who volunteered to participate for the study. The questionnaire was distributed online using Qualtrics (USA, 2017) survey software. After reading and acknowledging the informed consent in the first section of the questionnaire, the participants completed the questionnaire. Responses were automatically recorded on the Qualtrics software. Automated reminders were sent after seven, 14, 21 and 28 days. The survey closed after 31 days for data analysis to commence. The questionnaires were distributed prior to interviews commencing, so as not to influence the way participants answered the questions in the survey. This is consistent with the data collection process of a sequential mixed-methods design.[18] The purpose of the questionnaire was to obtain information regarding the healthcare educators' attitude, awareness and practises of breast health. From the questionnaires, a few patterns were observed in the responses which were then used to refine the interview questions. The purpose of the interviews was to obtain the in-depth understanding and move beyond a description of the current situation to seek elaboration on the described awareness, attitudes and practises found in the quantitative results.

After the questionnaires were analysed, interviews commenced. The participants who met the inclusion criteria and who indicated that they were willing and available for an interview to be conducted with them were selected according to some of the responses from the questionnaire as mentioned in Section 3.4.3. The selected participants were invited via email to participate in the interviews. Dates, times, and venues for individual interviews were scheduled at the convenience of each participant. The interviews were conducted in privacy in a closed room or

office which was convenient for the participant. The interviewer was aware of time constraints that all participants had and therefore went to the place that was the closest and most convenient for the participant, with the agreement that it must be private. There was a DO NOT Disturb sign placed on the outside of the door for the duration of the interview. This was done to ensure that the participant had the opportunity to answer the interview questions honestly and without any interruptions. Most interviews were conducted in English, but some interviews were conducted in Afrikaans and later translated in English.

Interviews were conducted in a neutral environment with privacy to maintain confidentiality.[50] Interviews were audio-recorded once consent was acquired from the participant. Participants were informed that the interview will be audio recorded. The researcher made field notes during the interviews. These notes were done to record the time and place of interviews, duration of interviews and any additional information, for instance reminders to researcher of aspects the participant emphasized during the interview. Each interview took approximately 20-45 minutes. Transcripts of the audio-recording of each interview were produced shortly after the interview. Interviews were transcribed verbatim. The researcher is fully bilingual and was therefore able to translate the Afrikaans interviews into English without compromising the integrity of the data. The interview schedule and probing questions remained the same during the interviews according to the usefulness and responsiveness to certain questions.

3.5.6 Variables

Awareness, attitudes, and practises of breast health are the primary variables in the study. Since the study is explanatory and descriptive in nature, the effect of dependent variables on independent variables were studied to identify the possible relationships between participants' attitude, awareness, and practises of breast health. Additionally, contributing factors influencing the variables described in the questionnaire were explored through interviews.

3.6 DATA ANALYSIS

Data analysis is used to organize, reduce, and give meaning to the data. The analysis for the quantitative and qualitative data was completed as described below.[28]

3.6.1 Quantitative analysis

Descriptive statistics were used to describe the categorical variables in terms of frequencies and percentages, while continuous data was analysed using means and medians for Section A and B of the questionnaire. The Mann-Whitney *U* test was used to test for association between the socio-demographic variables and the awareness, attitude, and practises. Pearson's correlation co-efficient was used to determine the correlation between summed attitude/ awareness scores and age. Data obtained from the Likert scale in Section B of the data collection tool was used to determine associations between demographic and risk factor variables. Statement 1-17 in section B was coded depending on the link to attitudes, awareness, or practises. Each category was assigned a score from strongly disagree (1) to agree (5). The mean score for each statement within the group (attitude, awareness, or practises) was determined. Thereafter, the total score for each group of statements was obtained by summing the mean scores. The relationship between the categorical variables and awareness, practises and attitudes score were determined by means of the Mann-Whitney *U* test. Correlations is used to analyse categorical data and allows the researcher to discover and demonstrate relationships between the variables in the data sets. All analysis was done using STATA 14 (StataCorp LLC, USA).

3.6.2 Qualitative analysis

The audio recorded interviews were transcribed verbatim by the researcher (Annexure D). During the interviews, field notes were made. These notes were important to the researcher as it contained information on the times and places of the interviews and the duration of the interviews. These notes served as reminders during the analysis of the data of important aspects the participants might have mentioned during the interviews.[48] The notes together with the

transcriptions were analysed in an organized manner. First, all the data was arranged and sorted into various codes to be analysed. This included all the typed transcripts and all the field notes that were typed afterwards. The data was then read and sorted after which the coding commenced according to themes. Tesch's eight steps in the coding process was the overarching systematic approach that was used to handle the qualitative data. These systematic steps were followed according to Tesch's eight steps in the coding process. These steps were:

i) Read through all the transcripts to get the full picture and write down some ideas as you read.
ii) Choose one document (transcript), maybe the shortest or most interesting one and ask yourself what it is about to find the underlying meaning instead of just the information at hand.
iii) After finishing this for a few participant interviews, make a list of the topics and start to group together similar topics into columns.
iv) Take that list and return to your data, shorten these topics into codes and write them at the relevant parts of the text, to see if new codes and categories arise.
v) Find the most descriptive wording for the topics and turn them into categories. Minimize the categories by grouping together topics that relate to each other.
vi) Finalize the categories by making an abbreviation for each and place them in alphabetical order.
vii) Gather all the data relating to each category and perform a primary analysis.
viii) If needed recode the existing data again.[48]

The coding needed to be done manually. By using this method followed by Saldanha's steps to deriving themes from the coding, the researcher had to read through all the text again to find and define the emerging themes.[52]

3.6.3 Merging of data

By using the sequential design in mixed methods, the data needed to be merged. The two data sets (quantitative and qualitative) were analysed separately and were then brought together (merged).[48]

3.6.4 Rigor

The use of a mixed method design ensured that there was no mono-operation bias as there was more than one instrument that was used to obtain the data: questionnaires and interviews. All participants received the same questionnaire therefore avoiding bias and ensuring consistency. By administering the questionnaires to all the eligible participants rather than a selected sample, the data that was collected could be more standardised, generalized and correct.[48]

For the quantitative part of the study, the content validity of the questionnaire was tested in a pilot study to ensure that the responses match the objectives of the study. This implied that the researcher had to check that the possible responses met the envisioned outcomes.

Reliability of a questionnaire is evaluated by ensuring that the measurement technique consistently measures a concept.[50] The reliability of the questionnaire in this study was enhanced using similar questions that have been used in other similar studies, as well as to ensure that the instrument measured what it was supposed to.

Content validity inspects the degree to which the measurement method includes all the major aspects relevant to the construct being measured.[50] The content validity and understandability of the questions was completed in the refinement process as referred to in section 3.4.3. The questionnaires were self-administered to all participants before the interviews were conducted. This ensured that the participants were not influenced by the researcher or the interviews when answering the questionnaire, thus avoiding response bias. This contributed to consistency, comparability and precision.[50]

For the qualitative aspect of the study, Creswell suggested eight strategies that could be used to ensure validity. These eight strategies are:

- *Triangulate* the data from the different sources of information by examining the evidence from these sources to build coherent justification for the themes. If themes are derived by uniting several sources or perspectives of participants then this process can be claimed to adding to the validity of the study.
- Using *member checking* to determine accuracy of the qualitative findings by sending the final report or some of the themes derived to the participants to check whether this accurately describes what they shared in the interview.
- Clarify the *bias* the researcher brings to the study by means of a self-reflection.
- By using *rich, thick description* the discussion gets an element of shared experiences which may offer many perspectives on a theme, this can add to the validity of the study's findings.
- Use *peer debriefing* to enhance the accuracy of the study. This entails to use a person to review the study and asks questions in order to resonate to other people and not only the researcher.
- Spending *prolonged time* in the study field gives the researcher an in-depth understanding of the phenomenon being studied and adds to the validity of the findings.
- By presenting *negative or contradictory* information that is counter to the themes adds validity to the study.
- Use of an external auditor to review the entire study adds to the validity of the qualitative study.

It was recommended to look at the strategies as a whole and to at least use two of these strategies. The easiest and most cost-effective three strategies used in this study were to triangulate the data, writing the narrative in detailed description and to cross check these descriptions with some of the participants to make sure

that the data is captured and interpreted correctly. Other costly strategies include peer review audits and external audits, which were also too time consuming.[48]

In order to produce a valid qualitative study the researcher needed to understand herself and be sure not to let her own beliefs and demographic characteristics (reflexivity and bracketing) influence the way the data is collected and interpreted thus ensuring consistency and neutrality.[22,53]
The researcher used bracketing for the collection and analysis of the data.[53] There are two forms of bracketing during the research: in the first bracketing, the researcher distanced herself completely as to not make any assumptions from personal experiences and beliefs during the interviews and the note taking.[53] In the second part of bracketing the researcher had to view the data without letting personal experiences and beliefs bias it.[53] This approach was used for the qualitative data analysis.

The trustworthiness of the findings was enhanced by thorough data collection, use of thick descriptions during the interviews and scrutinizing of the results and the verbatim transcription of the data obtained from the interviews. Assessment on the transferability of the results to the wider population could be done by providing a thorough description of the participant demographics applicable to the study within the context. Transferability could be ensured by providing the amount of interviews, interview venue, duration of interviews and the period over which the interviews were conducted, this will be specified in later chapters.[22] The dependability of the qualitative aspect of the research was ensured by careful coding and re-coding of the transcribed interviews. The use of triangulation of the results, was valuable in enhancing the credibility of the research in that it assures for completeness and it enables the researcher to confirm certain perspectives for better understanding of some responses. Triangulation of the data methods is to merge all the different perspectives derived from the questionnaires and the interviews and to then assure that all the aspects that influence the participants' awareness, practises and attitudes of breast health are addressed.[22]

As the researcher, I have 20 years' experience in the clinical aspect of Radiography and have worked as a Mammographer in a dedicated Mammography unit. Prior to and whilst conducting the research I was working as a clinical lecturer. My special interest is mammography and therefore this research topic was incredibly special and relevant to me. My presentation of the participants' views is as an outsider without letting my personal beliefs influence the participants during the interviews or analysing of the results as explained above.

3.7 ETHICAL CONSIDERATIONS

To ensure that the researcher complied with the ethical requirements where human participants are involved, the researcher followed the following guidelines:

3.7.1 Permission

Permission to conduct the study was obtained from the Research Ethics Committee of the Faculty of Health Sciences at the University of Pretoria (Annexure E), following approval by Dean of the Faculty of Health Sciences on behalf of the Deputy Dean of Education in the Faculty of Health Sciences and the Chairperson of each School (Annexure F). Negotiations to access each department in the Faculty of Health Sciences commenced after the Deputy Dean of Education had granted approval to conduct the study. The researcher adhered to the plagiarism policy of the University of Pretoria (Annexure G) and the principles of the Declaration of Helsinki (Annexure H).

3.7.2 Non-maleficence and beneficence

Data obtained from the questionnaires and interviews will be kept anonymous. Interviews will be conducted in such a way that beneficence and non-maleficence is adhered to. Non-maleficence is defined a showing no desire to cause harm to other people.[23] In this study there were no risks, or any discomfort involved for the participant. No participant was harmed by participating in the completing of the questionnaire nor participating in the interviews.

Beneficence was ensured by gaining ethical approval prior to commencement of the study. There were no direct benefits for the participants in this study. The findings of this study might lead to recommendations being made and improvements for the future might benefit the participant later in life.

3.7.3 Autonomy

Autonomy is defined as being able to make decision independently without controlled by anyone else.[23] Autonomy was upheld in that written consent from each participant was obtained prior to commencement of both parts of the study. This entailed that participants needed to consent after reading the information leaflet attached to the online questionnaire before they could start completing the questions. Participants completed the questionnaires online and therefore were not controlled or influenced by anyone else. Written consent was obtained from each interviewee before commencement of the interview. Annexure A is the informed consent leaflet which each participant completed prior to completing the online questionnaire and Annexure B is the informed consent leaflet that each participant signed prior to the interview.

3.7.4 Anonymity and confidentiality

For the quantitative aspect of this study, the questionnaires were submitted electronically and anonymously. Participants completed the online questionnaires anonymously. At the end of the questionnaire participants indicated whether they were willing to participate in the qualitative aspect of this study by means of an interview. By indicating that they were willing to be interviewed for the qualitative part of the study, their contact details were available to the researcher. This then waivered their anonymity. Participants needed to acknowledge and agree to provide their contact details for the interviews. The researcher would not disclose any contact information.

All participants in the qualitative aspect of this study were assigned a unique interview code with no identifying remarks used in the analysis. No identifying information was reported from the interview data. The only individual aware of the

names of the participants for the qualitative aspect of this study was the researcher. The questionnaires, interview recordings and transcripts would be kept in a secure location where only the researcher and the supervisor have access (Annexure I).The participants' right to privacy and anonymity were upheld throughout all aspects of the study.

3.7.5 Justice

Justice is defined as the fair treatment of people.[23] The questionnaire was sent to all healthcare educators with an information leaflet giving details of what the study entailed, this allowed them to choose to participate or not. Participants could not withdraw from the study once the questionnaire was submitted. Participants could however withdraw from participating in the second part of the study. Participants could also withdraw from the interviews at any time.

Furthermore, the study was voluntary and there was no discrimination or unfairness towards participants. No coercion and no rewards were offered for participating in this study.

3.8 CONCLUSION

Chapter three presented the methodological underpinnings of this study. It was identified that this study followed a sequential explanatory mixed method design with equal emphasis on the quantitative and qualitative aspects. Furthermore, the sample size for the quantitative aspect constituted 129 participants, and for the qualitative aspect 10 interviewees. The setting of this study was the entire Faculty of Health Sciences. The data analysis for both aspects of the study will be presented in Chapters four and five, respectively. As such, Chapter four presents the quantitative aspect of this study's results.

4 CHAPTER FOUR – QUANTITATIVE RESULTS

4.1 INTRODUCTION

In this chapter the results from the online questionnaires will be presented, in order to achieve the following objectives: (i) to describe and explain the practises of breast health among healthcare educators in the Faculty of Health Sciences, (ii) to investigate the awareness and attitudes of breast health among healthcare educators, and (iii) to describe the relationship between demographic variables and awareness, attitude and practises of breast health. The use of graphs and tables will clarify some of the results. The quantitative data was analysed using the IBM SPSS programme Version 25 (IBM Corporation, Armonk, New York). Descriptive statistics are used in the form of means and frequencies for continuous variables. The results include a description of the demographics of the participants. The awareness and practises of breast health and the attitude towards breast health are presented using a 5-point Likert scale. The awareness of the risk factors for breast cancer will be described. The relationship between practises and attitudes towards breast health is investigated and associations between the demographic variables and the awareness, attitude and practises were sought by using the Mann-Whitney *U* test.

4.2 RESPONSE RATE

The envisioned response rate was 25 – 30 % without follow-up e-mails and reinforcements.[51] With the use of various approaches of reinforcement like follow-up e-mails and reminders, a response rate of 70% could be achieved according to Fincham.[51]

A total of 156 responses was required to achieve a 30% response rate. In total there were 512 questionnaires sent out via e-mail. Of these, there were three e-mails that failed, 68 emails bounced back, and 103 e-mail addresses were duplicated. From the 512 questionnaires that were sent out ,131 were received back, but two were incomplete, which then closed the total to 129 questionnaires

received back and completed. This means the response rate was 25,19% which is lower than the recommended 30% for surveys.[51]

4.3 SOCIO-DEMOGRAPHICS OF PARTICIPANTS

In Table 4.1(a) and (b), the socio-demographics of the participants in this study are captured.

Table 4.1(a): Socio- demographics of participants

Socio-demographics of participants			Frequency (n = 129)	%
1.	Sex	Male	21	16,3
		Female	108	83,7
2.	Marital status	Married	85	65,9
		In relationship	10	7,8
		Divorced	9	7,0
		Widowed	2	1,6
		Never married	23	17,8
3.	What position do you currently hold?	Full time UP employee	66	51,2
		Part time UP employee	8	6,2
		Joint appointee	38	29,5
		Contract	11	8,5
		Other: please specify	6	4,7
4.	Highest qualification	Honours	16	12,4
		Masters	65	50,4
		PhD	36	27,9
		Post PhD	12	9,3

A total of 129 questionnaires were completed, of which 16,3% were responses from males and 83,7% were from females. The mean age of the participants was 46 years with the oldest participant being 67 and the youngest 26. The majority (51,2%) of the respondents were appointed in full time positions with 8,5%

appointed as contract workers. Most respondents held a Master's (50,4%) or Doctoral (27,9%) degree. The average clinical years' experience was 13,76 years and academic years' experience was 12,76 years.

Table 4.1(b): Socio- demographics of participants

Socio- demographics of participants		Frequency (n)	Percentage (%)
Member to medical aid	Yes	121	93,8
	No	8	6,2
Do you attend wellness sessions hosted by your medical aid?	Yes	23	17,8
	No	106	82,2
Do you attend wellness sessions hosted by the University of Pretoria?	Yes	26	20,2
	No	103	79,8
Family history of breast cancer	Yes	32	24,8
	No	97	75,2
Family history of any other cancer	Yes	56	43,4
	No	73	56,6

A high percentage (93,8%) of participants belong to a medical aid. Majority of the participants indicated that they do not attend the wellness sessions hosted by their medical aids (82,2%) or those organised and hosted by UP (79,8%). From Table 4.1(b) it is evident that a quarter of the respondents indicated that they had a family history of breast cancer while 43,4% indicated they had a family history involving any other type of cancer.

Table 4.2 below presents the familial relation to the participants who indicated they have a family history of breast cancer. This can also be interpreted as the participants who have the most dominant risk factor for developing breast cancer themselves.

Table 4.2: Demographics of participants relating to family history of breast cancer

Family history of breast cancer: relation	Frequency (n = 32)	Percentage %
Aunt	5	15,6
Aunt and sister	1	3,1
Familial breast cancer - self a cancer survivor	1	3,1
First cousin	1	3,1
Grand aunty (maternal)	1	3,1
Grandmother and now self	1	3,1
Grandmother	4	12,5
Grandmother – paternal	2	6,3
Maternal Grandmother	1	3,1
Mother	10	31,3
Mother cousin	1	3,1
Mother, distant cousin	1	3,1
Mother, sister	1	3,1
Paternal aunt	1	3,1
Several paternal aunts	1	3,1

Most participants (31,30%) indicated that their mother is the familial relation to breast cancer and 15.6% of the participants indicated that an aunt was their familial relation to breast cancer.

Table 4.3 provides a summary of the 56 participants' family history regarding various cancers other than breast cancer. Some participants listed more than one type of cancer in their family history. As such, the frequency of the type of cancer being reported is stated but not the percentage.

Table 4.3: Demographics of participants relating to family history of other cancer

Type of cancer	Frequency	Type of cancer	Frequency
None	2	Lung	6
AML Leukaemia	8	Maternal aunts	1
Bladder	1	Lymphoma	5
Brain	3	Non-Hodgkin's Lymphoma	1
Breast	2	Ovarian cancer	5
Cervix	1	Pancreatic	7
Colon Cancer	15	Prostate	7
Endometrial	2	Renal	1
Fallopian tube cancer	1	Skin	9
Leiomyosarcoma	1	Stomach	3

A family history of other types of cancer also contributes to the participants' risk factors for developing breast cancer themselves. The most common other cancer as noted from this table is colon cancer followed by skin cancer.

4.4 RISK FACTORS

The risk factors for breast cancer as described by the World Health Organization which were applicable to the participants are listed in Table 4.6.1 for the females and in table 4.6.2 for males.[1]

Table 4.4 (a): Risk factors for breast cancer that were applicable to female participants

Risk factors for breast cancer applicable to female participants		
	Frequency (n = 108)	
	N	%
No children	28	25,9
First child after 30	27	25,0

Risk factors for breast cancer applicable to female participants		
	Frequency (n = 108)	
	N	%
Never breast fed	25	23,1
Birth control pills	60	55,6
Early menarche	13	12,0
Aunt or mother breast cancer	22	20,4
Other type of cancer yourself	5	4,6
Late menopause	2	1,9
Hormone replacement therapy	15	13,9
BMI above 25	33	30,6
Smoking	4	3,7
Alcohol use 2 units per day	2	1,9

According to Table 4.4 (a), the most common risk factors that were applicable to the female participants were use of birth control pills (55,6%) and a BMI above 25 (30,6%). Other risk factors that were also noticeable are not having children accounting for 25,9%, having the first child after 30 at 25,0% and have never breast fed (23,1%). Another risk factor also worth mentioning is that 20,4% of participants indicated that their mother or an aunt was diagnosed with breast cancer.

From the female portion of the sample, 60,2% of the participants are dispositioned to have 10 – 12 of the risk factors for breast cancer, as identified by the WHO.[1] Furthermore, more than 80% have 9 – 11 of the risk factors for breast cancer.

Table 4.4 (b): Risk factors for breast cancer that were applicable to male participants

Risk factors for breast cancer applicable to male participants		
	Frequency (n = 21)	
	N	%
Aunt or mother breast cancer	1	4,8
Other cancer yourself	1	4,8
BMI above 25	7	33,3
Smoking	3	14,3
Alcohol more than 3 units per day	1	4,8

In Table 4.4 (b) it is noted that 33,3% of the male participants indicated that a BMI above 25 was an applicable risk factor to them as well as smoking accounting for 14,3%.

4.5 PRACTISING OF SCREENING TESTS

Figure 4.1below, illustrates the screening tests that participants are practising from the list of screening tests available to them.

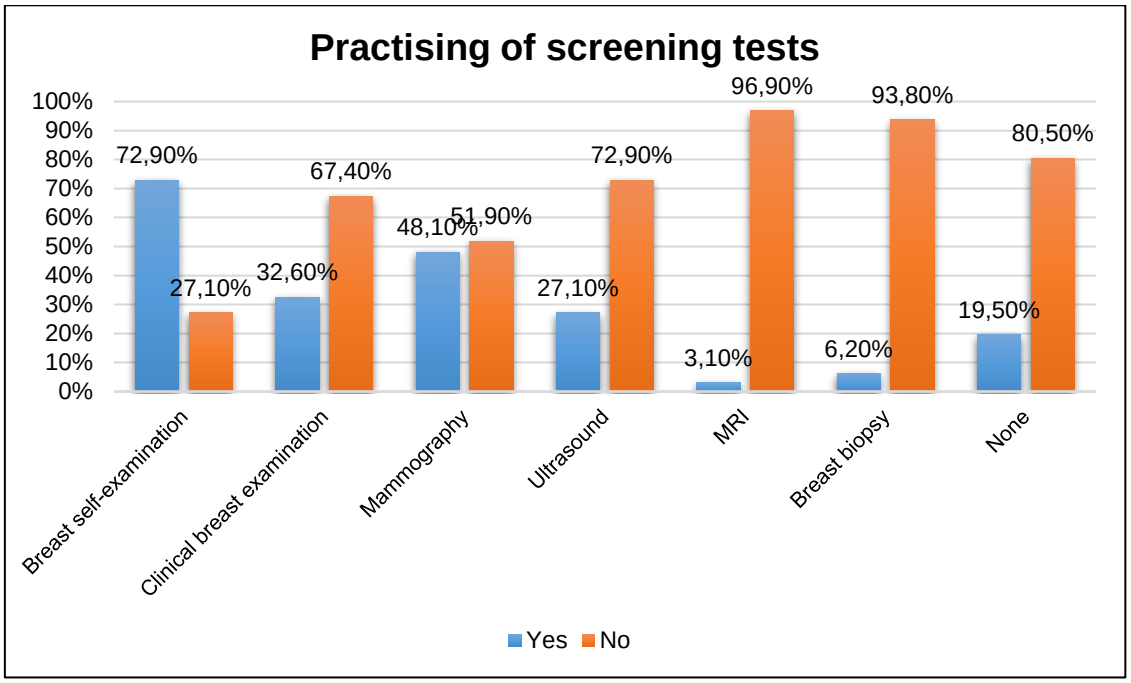


Figure 4.1: Practising of screening tests

As seen from Figure 4.4, 72,9% of the participants were practising breast self-examination but only 48,1% went for a mammogram. Moreover, there are 19,5% of the participants that do no screening tests.

4.6 SOURCES OF KNOWLEDGE TO PERFORM BSE

Figure 4.2 illustrates the sources from which participants learnt to perform BSE.

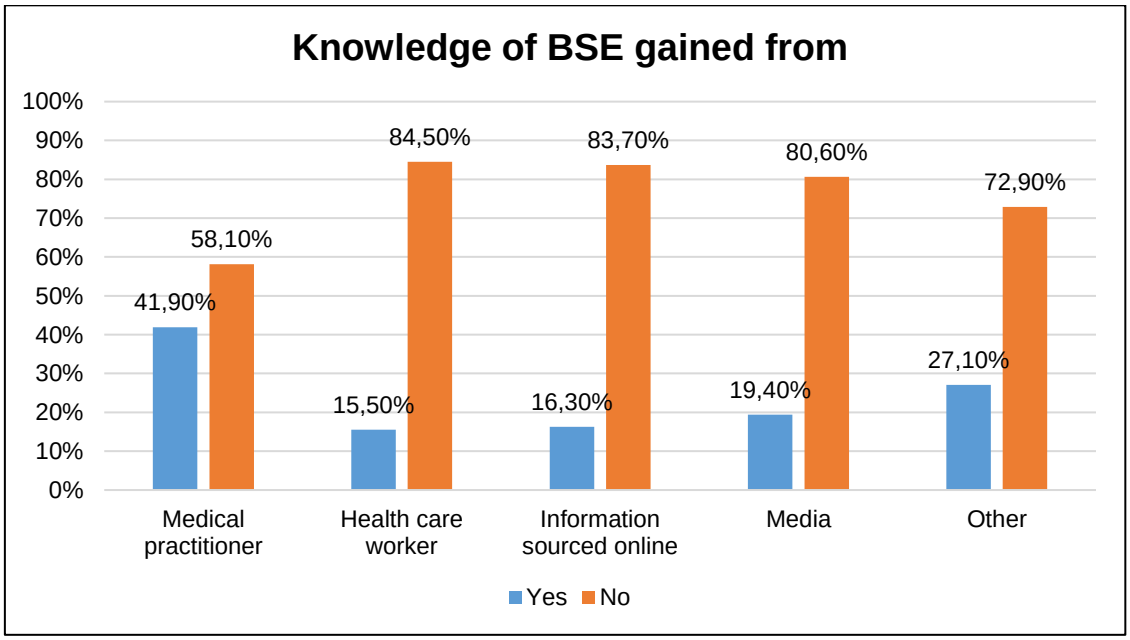


Figure 4.2: Participants' source for learning to perform breast self-examination

Many participants (41,9%) learnt breast self-examination from a medical practitioner or a health care worker (15,5%). Therefore, more than half of the participants learnt to perform breast self-examination from someone they trust to have the correct knowledge.

4.7 FREQUENCY OF PRACTISING BREAST HEALTH

Table 4.5 below depicts the frequencies at which participants perform screening tests for breast health.

Table 4.5: Frequency of practising breast health

Frequency of practicing breast health			Frequency (n = 129)	%
1.	How often do you perform breast self-examination? **Recommended frequency according to WHO: once a month*	Never	26	20,2
		Once a month	68	52,7
		Other	35	27,1
2.	How often do you see your physician/ medical practitioner about breast health issues?	Never	46	35,7
		Annually	47	36,4
		Bi-annually	23	17,8
		Other	13	10,1
3.	How often do you go for a mammogram? **Recommended frequency according to WHO: annually for women above 40*	Never	66	51,2
		Annually	24	18,6
		Bi-annually	22	17,1
		Other	17	13,2

According to Table 4.5, only 52,7% of participants practice BSE which is known to be the most cost effective and easily accessible form of breast screening. Some participants (20,2%) indicated that they never do BSE and 27,1% indicated that they do it at irregular intervals. In addition, 35,7% of participants indicated that they never see a physician or a medical practitioner about breast health issues and 51,2% indicated that they never go for a mammogram.

4.8 AWARENESS OF BREAST HEALTH

The table below indicates the risk factors that participants were not aware of. Of all the responses, 59,7% indicated that they are not aware of all the risk factors for breast cancer.

Table 4.6: Risk factors for breast cancer that participants were UNAWARE of

Risk factors according to the WHO [1]	Frequency (n = 129)	Percentage %
No children	44	34,1
First child after age 30	33	25,6
Never breastfed	30	23,3
Use of birth control pills	12*	9,4
Early menarche - younger than 12 years old	40*	31,3
Aunt or mother with breast cancer	3	2,3
Having another type of cancer, yourself	3	2,3
Late menopause - older than 55 years	30	23,3
Hormone replacement therapy	7	5,4
BMI above 25	22	17,1
Smoking	10	7,8
Alcohol usage (women > 2 units per day, men > 3 units per day)	16	12,4
Am aware of all the above risk factors	52	40,3

* Percentage calculated from total responses =128

As noted in table 4.6 it is evident that participants were not aware of some of the risk factors for breast cancer. The most unfamiliar risk factor to participants was having no children at 34,1% and early menarche (younger than 12 years old) at 31,3%. Factors such as first child after age 30 with 25,6% and never breast fed at 23,3% as well as late menopause (older than 55 years) with 23,3% were also noteworthy.

4.9 REASONS FOR DELAYING BREAST HEALTH

A total of 20 participants admitted to delaying issues regarding their breast health. These participants were requested to indicate possible reasons why they delay addressing breast health issues. Multiple responses were permitted. The distribution of the possible reasons is depicted in table 4.7 below.

Table 4.7: Reasons why participants delay addressing issues regarding breast health

Reasons for delay in address issues regarding my breast health	Frequency (n) = 20	
	n	%
Scared	4	20,0
Shy	3	15,0
Time	13	65,0
Where	1	5,0
Not enough info	1	5,0
Conflicting info	3	15,0
Cost	4*	20,0
Worry about results	2	10,0
Bad prior experience	1	5,0
Other: not specified	1	5,0

*Percentage calculated from total responses = 20

According to table 4.7, participants' most dominant reason for delaying breast health is time (65,0%), this means that most participants do not have or make the time to address breast health. Two other reasons that were both 20,0% respectively is that participants were scared to go for screening tests and worry about the cost thereof.

4.10 LIKERT SCALE RESULTS FOR BREAST HEALTH PRACTISES, ATTITUDE AND AWARENESS

Participants were tasked with indicating their level of agreement with certain statements describing their practises of breast health, attitude towards breast health and awareness of breast health. Responses were obtained by making use of a five-point Likert scale, with 1 – strongly disagree to 5 – strongly agree. The strongly agree and agree columns were merged as were the disagree and strongly disagree columns. The columns were merged for ease of understanding and interpreting the results.

Table 4.8 below indicates the Likert scale results for the participants' practising of breast health.

Table 4.8: Likert scale results for practises relating to breast health

	Strongly disagree/ Disagree		Neither agree nor disagree		Agree/ Strongly agree	
	n	%	n	%	n	%
I only seek professional help once I have detected a breast problem	49	38,0	16	12,4	64	49,6
My cultural beliefs prevent me from practising breast health	125	96,9	3	2,3	1	0,8
My religious beliefs prevent me from practising breast health	127	98,5	2	1,6	0	0,0
I often talk to students about breast health	68	52,7	35	27,1	26	20,1
I often talk to colleagues about breast health	58	45,0	39	30,2	32	24,8
I often talk to friends of family members about breast health	43	33,3	32	24,8	54	41,9

According to table 4.8, almost 50 % (49,6%) of participants only seek professional help once they have detected a breast problem. Furthermore, 96,9% of participants indicated that cultural beliefs do not prevent them from practicing breast health and 98,5% of participants indicated that their religious beliefs do not prevent them from practising breast health. Only 20,1% of participants indicated that they talk to students about breast health, while 24,8% talk to colleagues and 41,9% talk to friends or family members about breast health.

Table 4.9 below indicates the Likert scale results for the participants' attitude towards breast health.

Table 4.9: Likert scale results for attitude towards breast health

	Strongly disagree/ Disagree		Neither agree nor disagree		Agree/ Strongly agree	
	n	%	n	%	n	%
Breast health is important to me	2	1,6	5	3,9	122	94,6
It is important to me to perform BSE	2	1,6	4	3,1	96	95,4
It is important to go for a screening mammogram	2	1,6	21	16,3	106	82,1
It is important to me to discuss breast health with friends and/ or family members	13	10,1	36	27,9	80	62,1
It is important to me to discuss breast health with students	24	18,6	37	28,7	68	52,8
My cultural beliefs influence my attitude towards breast health	96	74,4	21	16,3	12	9,3
My religious beliefs influence my attitude towards breast health	119	92,3	5	3,9	5	3,9

According to table 4.9, 94,6% of participants indicated that breast health is important to them, and 95,4% indicated that it is important to them to perform BSE. Furthermore, 82,1% of participants indicated that it is important to go for a screening mammogram. However, according to Figure 4.4 as discussed above, only 52,7% of the participants indicated that they were practising BSE and 51,2% indicated that they have never done a mammogram before. In this study, only 62,1% of participants indicated that it is important to discuss breast health with family and friends, and 52,8% indicated it is important to discuss breast health

with students. The cultural beliefs did not appear to influence participants' attitudes towards breast health. Religious belief was only indicated by 3,9% of participants of being an influence on their attitude towards breast health.

Table 4.10 below indicates the Likert scale results for the participants' awareness of breast health.

Table 4.10: Likert scale results for awareness of breast health

	Strongly disagree / Disagree		Neither agree nor disagree		Agree / Strongly agree	
	n	%	n	%	n	%
I know the correct way to perform BSE	14	10,8	17	13,2	98	76,0
I know the difference between CBE and BSE	18	14	15	11,6	110	74,4
I am aware of the breast health services offered by my medical aid	35	27,1	22	17,1	72	55,8
I am aware of the UP-Wellness Programme	19	14,7	13	10,1	97	75,2
Early detection of breast cancer can improve the treatment outcomes	1	0,8	0	0,0	128	99,3
Treatment for breast cancer is beneficial	1	0.8	5	3,9	123	95,4

According to table 4.10, 76,0% of participants indicated that they know the correct way to perform BSE and 74,4% indicated that they know the difference between CBE and BSE. Most participants (99,3%) agreed that early detection of breast cancer can improve the treatment outcomes, and 95,4% regarded treatment for breast cancer as beneficial. Furthermore, only 55,8% of participants are aware of

the health services offered by their medical aid, and 75,2% are aware of the UP-Wellness Programme.

4.11 ASSOCIATIONS BETWEEN VARIABLES

In order to identify the associations between participants' selected socio-demographic variables and their awareness, attitude and practises of breast health, the Mann-Whitney *U* test was used.

Before conducting the Mann-Whitney *U* test, the mean scores were calculated for the sub-questions forming part of the attitude, awareness, and practises of breast health components (Likert scale) respectively. Thereafter, the total score for each group of statements was obtained by summing the mean scores. Once the Likert scale's mean scores were achieved, the associations between the participants' socio-demographic variables and attitude, awareness and practises of breast health could be determined.

Table 4.11 below depicts the associations between participants' selected socio-demographic variables and their awareness, attitude, and practises of breast health.

Table 4.11: Associations between selected socio-demographic variables, attitudes and awareness towards breast health

	Awareness (p-value)	**Attitudes (p-value)**
Age	0.2413	0.3060
Sex (male *vs* female)	0.4532	0.9311
Marital status (Married/ in relationship *vs* Divorced/ widowed/ never married)	0.0399*	0.2653
Family history of breast cancer	0.3055	0.0474*
Family history of other cancer	0.3861	0.2443

*Significance p≤0,05

A p-value of 0.05 was considered significant for statistical output. The Pearson correlation coefficient was used to determine the correlations between participants' age, awareness, attitude, and practises of breast health. A significant correlation was obtained between participants' awareness and attitude toward breast health (r = 0.000).

From table 4.11, marital status was associated with awareness of breast health with those being married/ in a relationship having higher awareness scores. Furthermore, there was an association between family history of breast cancer and attitude toward breast health. However, there is no association between family history of other cancer and awareness and attitude toward breast health.

4.12 CONCLUSION

This chapter presented the results obtained from the empirical analysis of the quantitative section of this study, in order to achieve the objectives as formulated in Chapter one. Results obtained in this chapter indicated that the most notable relation to the family history of breast cancer was participants' mother (31,3%). Furthermore, 72,9% of participants indicated that they practice BSE, and gained their knowledge of BSE from medical practitioners (41,9%). The most notable reason for delaying issues regarding breast health was time (65,0%). There was a significant correlation between participants' age, awareness, attitude, and practises of breast health. Finally, participants' marital status had a significant association with their awareness toward breast health. Family history of other cancer had a significant association with participants' attitude toward breast health. The results obtained in this chapter form the basis for the discussion in Chapter six. Chapter five presents the results obtained from the qualitative analysis section of this study.

5 CHAPTER FIVE – QUALITITATIVE RESULTS

5.1 INTRODUCTION

In this chapter the results from the one on one interviews that were conducted by the researcher will be presented. The interviews were conducted in privacy in a closed room or office which was convenient for the participant. The interviewer was aware of time constraints that all participants had and therefore went to the place that was the closest and most convenient for the participant with the agreement that it must be private. There was a DO NOT disturb sign placed on the outside of the door for the duration of the interview. This was done to ensure that the participant had the opportunity to answer the interview questions honestly and without any interruptions. After completion of the interviews the interviews were transcribed verbatim by the researcher (Annexure D) and were then read in detail to be able to start the coding process.

Coding was done in cycles according to Tesch's eight steps to label data into certain ideas.[48] The first cycle is where the researcher made sense of the data to start the coding process. The second cycle was then used to refine the codes and to find patterns in the data. There were numerous cycles until the researcher had found the patterns in the data and then sorted them into various themes according to Saldana's method. Simultaneous coding was used, where multiple codes from the same passage of transcribed data were retrieved.[52]

Figure 5.1 below indicates Saldana's method for coding assertions, which was used in this study to obtain the relevant themes during the qualitative analysis.[52]

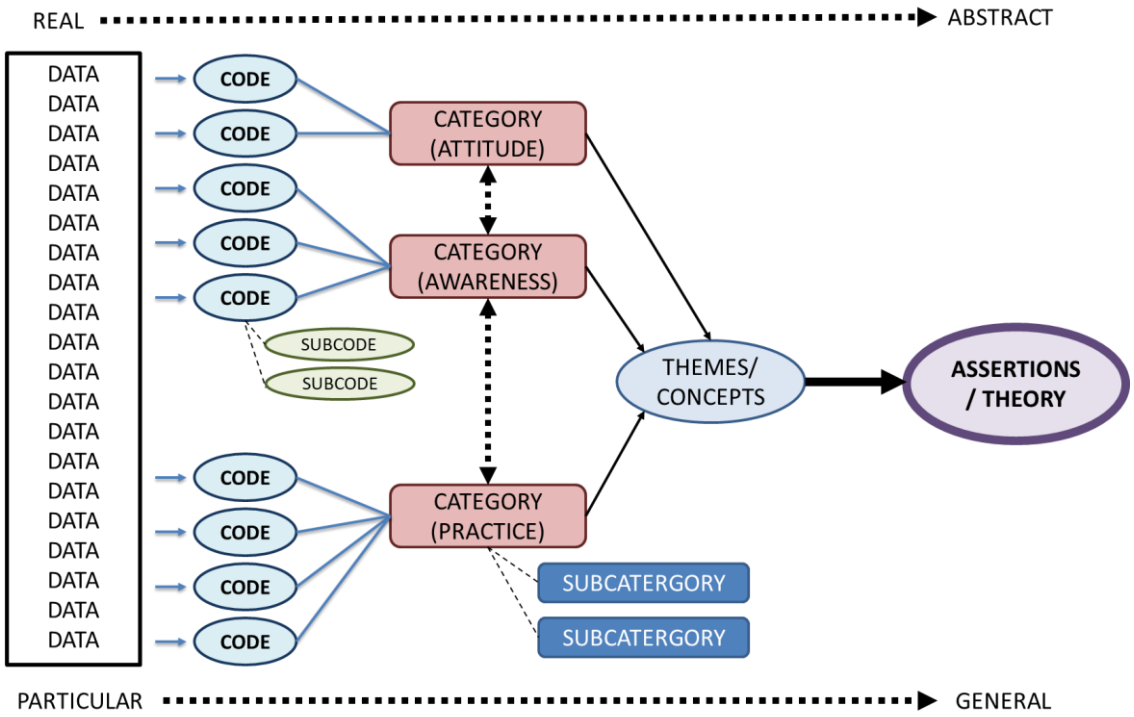


Figure 5.1: Saldana's code to assertions diagram.[52]

Annexure K illustrates how the codes in the data were categorised for themes and sub-themes to be derived according to Saldana's method.

5.2 DEMOGRAPHICS OF PARTICIPANTS

The participants were purposively selected for the interviews to gain more insight to the answers to some of the quantitative questions. The participants were selected based on their answers in the quantitative aspect of this study. This then resulted in only the female participants being included in the interviews. The age range of participants for the interviews were between 30 and 58.

Table 5.1 below indicates the ages, gender of the interviewees and interview durations for each of the individual interviews.

Table 5.1: Interviewees' ages, gender, and interview durations

Participant	Age	Gender	Interview duration
1	44	Female	39min, 12sec

Participant	Age	Gender	Interview duration
2	42	Female	28min, 24sec
3	43	Female	27min, 28sec
4	56	Female	26min, 25sec
5	41	Female	13min, 33sec
6	58	Female	12min, 28sec
7	30	Female	16min
8	39	Female	29min, 45sec
9	43	Female	30min
10	43	Female	46min

Table 5.2 below indicates each of the themes that emerged for the qualitative analysis, along with sub-themes and relevant categories.

Table 5.2: Typology of themes and sub-themes

Themes	Sub-themes	Categories
Importance of breast health	Practising of screening tests	• BSE • Mammography • Frequency of screening test
	Reasons for delaying issues regarding breast health	• Time • Worry about results • Priorities
	Early detection of breast cancer	• Beneficial outcomes • Family history • Faith in treatment
Information on breast health	Healthcare providers	• Awareness campaigns • Wellness days
	Sources	• Google

Themes	Sub-themes	Categories
		• Online academic databases • Magazines
Discussion of breast health	Healthcare educators	• Students • Colleagues
	Social setting	• Family members • Friends
Accessing breast health services	Usefulness of support services	• UP-Wellness day • Medical aid wellness day • Convenience • Prioritising
Values and beliefs regarding breast health	Psychosocial factors	• Privacy intrusion • Shyness • Upbringing

The reader is requested to refer to Annexure K where excerpts from the interviews are included, as well as evidence of how the derivation of categories, themes and sub-themes were done.

5.3 IMPORTANCE OF BREAST HEALTH

During the interviews, participants highlighted certain aspects about their breast health practises which included screening tests for breast health. BSE and mammography were most frequently referred to as presented below.

5.3.1 Practising of screening tests

Screening tests available to participants include BSE, CBE, mammography, and ultrasound. Advanced screening tests like MRI and Breast Tomosynthesis are also available to participants in most private breast health centres. The following

issues were raised by the participants during the interviews regarding the practising of screening tests.

5.3.1.1 BSE

Many participants indicated that they are not sure what to feel for when they do BSE. They are not sure due to the composition of their breasts and are not sure if what they feel is normal or can be indicative of something being wrong. They therefore rely on yearly mammograms.

> *P1, L29-31 "My breasts are very fibrous, and I have permanent lumps everywhere, so it is never easy for me to know if this is a new lump or whether it was there anyway. They are very lumpy, so I have decided in my head that I need to go for a mammogram when I am 40."*

One participant indicated that she became aware that her daughter is taught to do BSE at school in one of the subjects.

> *P9, L32-35 "when I remember (participant refers to when she does BSE), at times when I am teaching my daughter, because they also teach them about that in school, I think it is in life orientation. She says they say you should do breast examination often. So, I just want guide her to do it. I am not sure if I am doing it right, but I am showing her how."*

Many participants are aware of what to do but do not do it because it does not directly affect them personally. Once it does affect you in a personal capacity, for instance when a family member or friend is diagnosed with breast cancer, you become more diligent in the doing of screening tests like a mammogram.

> *P1, L14-18 "I think if it doesn't touch you personally then you think it isn't applicable to you. You will worry about it when you become a certain age because everybody says that you need to go for a mammogram above 40 so why worry before because this happens to other people, why would it happen to you"*

5.3.1.2 Mammography

To make time to make an appointment and to make time to go for a mammogram was indicated as being some of the hindrances of why participants neglect to have a mammogram done.

There appears to be a misconception amongst women that a mammogram is painful and therefore many women refuse to go.

> *P1, L32-35 "decided that since I am 40 and I have to go I postponed it for a year because everyone tells you how incredibly sore a mammogram is and my mother told me 20,000 times that I have to go but then I hear these terrible stories as to why you would expose yourself so I now have the courage"*

Some participants might have previously had a bad experience of a mammogram and this might prevent them from going to have their annual mammogram done.

> *P10, L21-26 "I tend to avoid doctors, because it bring forth these emotions that I carry that you know that is a person that I want to avoid, even being in the medical field, so the less I have to deal with it the better, in a nutshell. The other reason was when I had to do the limited mammogram, I had severe pains underneath for example my two armpits and at that time I went for it, it was a strange feeling so I was a bit concerned and at that time I wasn't diagnosed with any cancer so I just wanted to know what was happening and understand my body then and because it was below 40, they said I needed to do a limited mammogram to ensure that nothing was happening."*

Some participants indicated that it is too much effort to make an appointment to go for a mammogram.

P8, L8-11 "(with reference to why the participant would delay breast health issues) yes, it is true, it is sometimes just too much effort to make an appointment and to get around doing it and with the fast-paced life. And it is also because people don't always regard it as urgent or important. You don't feel any pain, so it is easy to postpone it."

5.3.1.3 Frequency of screening tests

The participants were given the opportunity to indicate during the quantitative aspect of this study, the frequency at which they perform screening tests. It was therefore important to include this question during the interviews. The following narratives are examples of responses received regarding the frequency of screening tests.

P2, L28-30 (referring to BSE) "I do but not as regular because my breast tissue is dense so I can't always feel"

P4, L12 "I am going now next week for one (referring to mammogram) after five years"

P2, L33-34 "I go annually for a gynaecology examination and the gynaecologist does CBE and then I go every two years for a mammogram and a sonar"

P5, L44-46 (referring to mammography) "luckily I have had one last year when I turned 40, that was my first one, I couldn't wait, I have had my second one this year as well and I do regular check-ups as well. I look at my skin, I feel for lumps, I am very cautious about that."

P6, L41-43 "not so regularly, no. (referring to BSE) when you shower and you think you will feel if there is something wrong, so I

don't always do it but sometimes I do remember and then I will do it. It might be once every three months. It is not that regular."

P7, L4-5 "I think in general it is important. Especially to pick up any breast cancers, pick it up early even, but I must say, no can't say it is important to me because I have not done it… L7, I have done nothing yet, I know my mom has done a mammogram, I have not done any checks."

5.3.2 Reasons for delaying issues regarding breast health

During the quantitative aspect of this study, participants had the opportunity to indicate what their reasons for delaying issues regarding their breast health might be. Some of these reasons indicated were: time, worrying about results and their priorities and therefore the question was also included the during the interviews. The following narratives are examples of responses received regarding the reasons for delaying issues regarding their breast health.

5.3.2.1 Time

Time was indicated as a hindrance to do breast screening tests. Some participants indicated that they are just too busy.

P3, L27-29 (referring to screening tests) "it is not that I don't think that they are good or meaningful that I haven't gone for one yet, it is just negligent and too busy"

P6, L13-14 "I think is more being busy and not focusing on it and not thinking about it, if you think about it, I must still do that"

P8, L15 "usually when you get an appointment (for a mammogram) then you have to go. It is just the dedication to put that time aside"

P9, L11-12 "I think it is time, for the most part it is not making the time. It is making the time to do it."

5.3.2.2 Worry about results

False positive results from screening tests can cause unwanted stress. In some instances, a screening test can indicate an abnormality which then needs to be further investigated by means of a biopsy. A biopsy can be a scary experience for a patient and the results of the biopsy can be benign, but the patient still has the same amount of stress or fear for the results whether it is benign or malignant.

P3, L228-230 "sometimes a mammogram shows something and then it ends up being nothing then you see the stress a person goes through that thinks there is something wrong and then they find out later there isn't anything wrong. So, I wonder if there is really something to it if it shows positive but there isn't anything."

5.3.2.3 Priorities

People become more aware of breast cancer once it reaches someone close to them like a friend, family member or yourself. Then you start to realize that it is a disease that is very real. Otherwise you think you will worry about it later

P1, L20-22 "if it isn't a mother or a grandmother or a friend or a cousin close to you I think people then actually hope it doesn't happen to you and would worry about it later. That is my opinion."

Some participants indicated that it is too much effort for them to make an appointment to go for a mammogram.

P8, L8-11 "(with reference to why the participant would delay breast health issues) yes, it is true, it is sometimes just to much effort to make an appointment and to get around doing it and with the fast-paced life. And it is also because people don't always regard it as

urgent or important. You don't feel any pain, so it is easy to postpone it."

For some participants, the dedication is not always there to have the tests done or to do BSE as regularly as they should be done. It needs to be prioritized.

P7, L26-31 "…usually the self-check is one of the simplest most cost effective, but I am still not it… so I cannot say any other forms (referring to mammogram and ultrasound) would be better because the most simplest one I don't follow."

P6, L6-9 (with reference to delaying issues regarding breast health) "I sometimes do (delay), but I think it is in general with my own health. You know if you are acutely ill, you get flu or something, you go to the doctor immediately, but things like that, I am not very good with that. I would sometimes postpone or think that I must make an appointment and then I don't do."

P6, L13-16 "I think it is more being busy and not focussing on it and not thinking about it and if you think about it, I must still do that… there is more important things to do. I tend to sometimes neglect my own wellbeing."

5.3.3 Early detection of breast cancer

During the quantitative aspect of this study, 99.3% of the participants indicated that early detection of breast cancer is important, and 95.6% of the participants agreed that the treatment for breast cancer is beneficial. Participants indicated in the demographics section whether they had a family history of breast cancer.
It was therefore important to include this question during the interviews. The following narratives are examples of responses received regarding the frequency of screening tests.

5.3.3.1 Beneficial outcomes

According to the WHO, early detection of breast cancer improves the outcome by means of reduced mortality and improved early treatment.[1] Some participants however, indicated that they fear the unknown and cancer. Some find it easier not to know than to go for screening tests.

> *P9, L55-62 "breast cancer is a bit of a scary thing if it is picked up early from what I have heard, and the experiences I have had with a few people, I think if it is picked up early something can be done about it. (if they pick it up early, your patient outcome is better then) yes, I think it is better, and then the people better know how to take care of themselves. I don't think we should be afraid, it is our responsibility, especially as health professionals to take away that fear, I think it is fear we have, but fear of what if I find out I am actually sick."*

> *P7, L44-50 "but I think perhaps with that fear of the unknown, sometimes it is usually ignorance is bliss in the sense that as soon as I go digging that I find something wrong, I wouldn't know what to do know next, so I would leave it, if there is nothing wrong and I check that a year passes, then I would hear about it again, for example between now and filling out the questionnaire (referring to the quantitative part of this study) it clicked that oh yes breast health, did I check between then and now, no."*

5.3.3.2 Family history

Participants indicated that if they do not have a family history of breast cancer, they are less motivated to go for screening tests. Participants indicated that you become more aware of breast cancer and risk factors if you have a family member diagnosed with cancer.

> *"P7, L73-81 "I think if there is like a family history, it might encourage the patient to check frequently and then will lead to early*

detection and motivate that now we have caught it early. They can remove whatever was found, and if need to go through chemotherapy or radiation then you are on the roll already, unlike they found it an advanced stage and then that's it. So if it helps being on Momentum Health, this is what is happening in the family, I need to keep checking every six months or every 12 months, then if something found this is a continuous flow unlike when there has been no family history then stage three. So, I think being on the pre knowledge would help."

P2, L13-14 "if you have a family history or if you know that there are risk factors then you would be more aware of it."

Participants are aware of what to do for early detection of breast cancer but do not do it, because it may not affect them personally. Once it does, they become more diligent in the doing of screening tests like a mammogram.

P1, L14-18 "I think if it doesn't touch you personally then you think it isn't applicable to you. You will worry about it when you become a certain age because everybody says that you need to go for a mammogram above 40 so why worry before because this happens to other people, why would it happen to you"

P2, L13-14 "if you have a family history or if you know you have risk factors you are more aware."

5.3.3.3 Faith in treatment

One participant indicated from personal experience, that she thinks only younger people need to do screening tests. People should only have treatment for cancer if it will improve their quality of life. In some instances, the treatment does not always improve the quality of life of the patient.

P4, L65-73 "(with reference to screening tests and early detection) so let me ask you again, and I don't know if this is part of your

research but, so if you detect, isn't it already too late? There is so many cases that I know of and maybe technology also changed but you see so many women with breast cancer and that they go through horrendous treatments and that their quality of life is just gone, and then it just comes back. So, my point of view is I would really, I am sure you don't want to hear this. If I am diagnosed with breast cancer, I would think oh this is it, I must just live with this till I die, because I do not want to get quality of life or do I want to have terrible quality of life and cancer free. What do I want? I don't know if this is what you want to hear in your research."

5.4 INFORMATION ON BREAST HEALTH

The following section explains where participants obtain information on breast health which links to awareness of breast health. Most participants indicated that they use Google as an information source, although all healthcare educators have access to medical journals and articles. These sub-themes that emerged with regards to information on breast health are health care providers and sources of information. These subthemes will be presented with supporting quotes from the interviews to explain where and how participants access information on breast health.

5.4.1 Healthcare providers

From the quantitative aspect of this study, it became evident that 82,2% participants do not attend wellness days arranged by their healthcare providers and 79,8% of participants do not attend wellness days arranged by their employers.

5.4.1.1 Awareness campaigns and Wellness days

Participants indicated during the interviews that to raise awareness, it is important that all of us become part of the campaigns and try to help create awareness by means of posters etc. This should be done more often that once a year during breast cancer awareness month. The importance of the media to assist in this

matter should not be underestimated. The media should reach a broader spectrum of people within communities to make them aware of breast cancer and risk factors associated with breast cancer to enable them to reach out to screening facilities. The following narratives are examples of responses received regarding the awareness campaigns and wellness days.

> *P5, L29-32 "I just wish actually that campaigns should not actually be done only in October during the breast cancer month but throughout the year, perhaps maybe every week, every month. The media, everything must actually consultise the community's percolation about the dangers of breast cancer."*

It also emerged that the severity of breast cancer is not always addressed in awareness campaigns. This statement is supported by the following narrative:

> *P10, L154-158 "actually you know what the awareness of the severity of the condition is not addressed, what I am trying to say here is that we came to evade the topic not because it is difficult to talk about it, or there is some shyness, but it is because there is not enough awareness of its importance you understand and that is basically it."*

5.4.2 Sources

A question on sources of information was included in the interviews to gather in-depth data regarding the Participants needed to indicate their sources of information regarding breast health during the quantitative aspect of this study.

5.4.2.1 Google

Google is the most prevalent source of information that is being used by most participants.

> *P9, L79 (referring to Google information) "it is basic. For me at least Google opens your eyes like for instance when you need to find information about signs of diabetes for example, certain things are*

quite basic, yes you do need to have a bit of a qualification to know that it is not it and I think to giving the basics, Google is quite user friendly and is quite useful… it helps people to know the information is there, you don't suddenly have to go and see a doctor to explain what Diabetes is. At least when you go to see a health care professional, you at least have a clue of what you are dealing with. I think it can be used as an educational tool."

5.4.2.2 Online academic databases

Although all participants have access to online academic databases, their preference is still to use Google as an information source.

P2, L184-187 "I did say Google (for information on breast health) but I do have access to the web so I will read up on academic articles, so I do have the advantage above others. I might do that instead of Google but if I don't feel like reading much, I would Google just to begin with."

P3, L76 "we have access to much more information" (referring to not only using Google as an information source for breast health)

P3, L78 "what I would sometimes do is to go to the CDC website."

5.4.2.3 Magazines

Some participants also indicated that they rely on the information given by their gynaecologists or oncologist. These professionals are then also sought and trusted to guide the participant in decision making regarding their breast health.

P2, L175-178 "a person reads magazines. It is not medically based but I think their sources are fairly good and Google is a good source. If I go for a mammogram, I would ask them if I want to know something. I ask the doctor or radiologist or gynaecologist whoever I am seeing."

5.5 DISCUSSION OF BREAST HEALTH

During the quantitative aspect of this study participants indicated that they do not regard it as important to speak to students, colleagues, family members and friends about breast health. This links to the attitude and practises of the participants. Furthermore, the interviews highlighted some of the reasons why they do not discuss breast health.

5.5.1 Healthcare educators

Health care educators teach students and therefore should have the opportunity to speak to students about breast health in their different fields of study.[26] However, 79.9 % of participants indicated that they do not find it important to speak to students about breast health and therefore do not actively seek opportunities to do so.

5.5.1.1 Students

Most participants indicated that there is no good opportunity to talk to their students about breast health. The reasons given include that it is not part of the subject they teach, it feels as if you are talking out of your turn, there is no real connection between what they teach and breast health.

> *P3, L106-107 "the students with whom I might speak over breast health are postgrad students. The undergrad students I would discuss infectious diseases and not really breast health as it is not in my subject field."*

> *P4, L97 "no, not as part of my job description or part as my role that I will do it, no."*

> *P5, L82 "to be honest, I do not think there is an equal opportunity (referring to speaking to students)"*

> *P7, L101-105 "no, even with the students with the subjects I am teaching, the only time that the word breast comes up is if they need*

to be doing a technique and I have to ask consent that if my hand brush against your breast while I am doing this, do I have consent to touch you? And that is it. There is no other space that gives the opportunity to speak about breast health."

P8, L86-88 "I have never thought about talking to students and I feel I might be talking out of my place but hear what you say. Because we are health care workers, it is actually the right place."

Some students in one discipline are taught breast feeding during their curriculum. This might be a missed opportunity to teach them more about breast health in general with a multidisciplinary team involved

P9, L104-110 "yes, because we have breast feeding week, so in my line of work…I train students also on breast feeding, breast health goes together with that. Also, we have this multidisciplinary thing that we do as a school community inducement and part of this community inducement is bringing in the different disciplines. So, Radiography will come in, the nurses will come in when we have breast feeding week so that the different disciplines can focus on different aspects of breast health or just breast feeding…maybe we can do more."

P10, L300-301 "so in any case, you know to speak about breasts in my class now. It would be too embarrassing. I would probably go red as much as the students would go red."

5.5.1.2 Colleagues

Most (76.2%) participants indicated that they do not regard it as important to speak to colleagues about breast health; therefore, they do not do it.

P10, L145-149 "actually it is not about that I am shy, it is because nothing has happened. Since only when it happens then we alerted

to the fact that we must be on guard. So, we have very irresponsible responses to this. We are very irresponsible all in all, that is what I think. We never spoke about breast cancer here amongst our colleagues for example."

5.5.2 Social setting

In some instances, participants indicated that they rather speak to family members and friends about breast health.

5.5.2.1 Family members

Most participants indicated that they only spoke to their family members about breast health once it became a reality to them with regards to somebody being diagnosed with cancer.

P5, L90-92 "definitely. I do speak to my family members, more especially on my mother's side had cervical cancer, so as cancer is in the family, I do talk to them about it"

P7, L89 "I have only spoken to my mom about it, that is when I found that is when she goes for a mammogram"

P10, L135 "not until it became a problem"

P10, L137 "not until they have been diagnosed."

P10, L141-142 "just to let it be okay and I offer support with regards to the situation, however we don't necessarily talk about it."

5.5.2.2 Friends

Some participants indicated that they do speak to their friends about breast health. One participant highlighted this because she had three or four of her friends that have been diagnosed with breast cancer in the past year.

P3, L92-95 "I will speak to my friends but not necessarily students, I don't think I have spoken to students about it (referring to whether they speak about breast health) but with friends and family I do. It has become so common because I know three or four women that have been diagnosed in the past year."

5.6 ACCESSING BREAST HEALTH SERVICES

Most participants indicated during the quantitative aspect of this study that they do not attend wellness sessions hosted by their medical aid (82.2%) or employer (79.8%) although they are aware of these sessions being held. It was therefore important to include this question during the interviews. The following narratives are examples of responses received regarding the frequency of screening tests.

5.6.1 Usefulness of support services

Participants were asked to indicate possible reasons for not attending the wellness campaigns.

5.6.1.1 UP-Wellness day

On the question of events that are organized within the institution the following responses were received. The employer does their own wellness campaigns and days, but most participants indicated that they do not participate in these wellness days and they do not find them accessible enough.

P3, L126-127 "yes we do get regular information from UP wellness and it looks very interesting, but I haven't had the time to attend any of them"

P4, L120-123 (with reference to UP wellness days) "I don't look out for them because of my inclination… yes, I don't care, it is very bad"

5.6.1.2 Medical aid wellness days

Most (93.8%) participants belong to the preferred medical aid underwritten by the employer and this medical aid does numerous wellness screenings.

P5, L113-115 "I have seen quite a few of them that have actually been done on the main campus, I think it is not convenient for some us to go there."

P5, L118 "they are not inclusive"

P9, L189- (with reference to medical aid) "I think they can do better, I have a bit of an issue with the medical aid, I think they are not preventative, because I think that if you have a medical aid scheme you have the number of females that you have there, when you have the breast health whatever month or the cancer awareness month. It is important to send messages to those people, do that discreet, so I also think sometimes we prioritise things based on our medical aid. If the medical aid would tap into that because I am paying for health care, part of it is because I care about myself, but there is also part that your employer forces you to do it but already I am concerned about my health, why not encourage me to go for screening, why not go for, like I say when it is cancer month, if it is diabetes. Send out those messages about prevention continuously. I think they can at least send a message one or once in two months about prevention and I think in South Africa we need, we have to prioritise prevention and it is as if they are not getting it.

One participant indicated that she has not even seen any information about UP or medical aid wellness days.

P10, L132 "no. I have seen none."

5.6.1.3 Convenience

Some participants indicated that they do not find the wellness days convenient with regards to the location as it takes them time to go to the other campus where the screening tests are done.

P5, L126-127 "so it is difficult for us most of the time to just ask time off to go there because we are service rendering, we don't want to cause a shortage of staff in the department, so they go on their own time."

5.7 VALUES AND BELIEFS REGARDING BREAST HEALTH

During the quantitative aspect of this study, the participants had the opportunity to indicate possible reasons why they delay issues regarding their breast health. Some of the scores that scored high were time, scared and costs as well as worrying about results. Hence the inclusion of the following questions in the interviews.

5.7.1 Psychosocial factors

In the qualitative aspect of this study, participants were asked to indicate possible factors relating to delaying breast health issues.

5.7.1.1 Privacy intrusion

Some participants indicated that they don't talk to others about breast health as it is a private matter, too embarrassed to talk to others about it.

P10, L284-287 "the only reason why we not talk to somebody about it, no I do think women have been brought up in such a state for example, talking about your body and talking about for example your organs, female organs is something private. It has the stigma that it is a private topic."

5.7.1.2 Shyness

Some participants indicated that they delay breast issues because of shyness, in many instances you are too shy to discuss personal matters like breast health with others as you were brought up with the perception that it is a private matter you do not discuss with others. It might also affect your practises of breast health

as some are not inclined to do BSE and mammograms because they find that their privacy is invaded.

> *P1, L116-122 "You get raised to not talk about intimate things. Times have changed where you do not have to be shy, but you are. I would not do the breast self-examination due to the way I see my body and the way I was raised."*

Some participants also felt shy to have to go for a mammogram as it is a very private area of the body that needs to be examined.

> *P10, L29-33 "because there was a physical examination done (referring to mammogram), as well as a physical examination done by the doctor himself, my clinical examiner is actually uncomfortable for me so that is another reason I think I tend to, I don't find it comfortable that people, you know that they can touch me and feel for this and feel for that."*

> *P7, L36-40 "I do have a general problem with people in my space, that is something I have noticed, so I don't go for check-ups unless I really, really have to, and if it is somebody else, if it is a gynaecologist and I know I have to go for other exams, I try to block my mind that this needs to be done, but I find it very difficult for somebody else to be touching my body for examinations."*

5.7.1.3 Upbringing

Participants indicated that some people prefer to live in ignorance or denial to evade what is important, this is all a mindset we prefer to be in then.

> *P10, L196-198, 203 "Basically we are living in ignorance and living in life that this can't happen (referring to cancer) even though she herself had a mother that has just passed on from cancer. Evaded this and now she has been picked up with breast cancer."*

P1, L118-120 "you get brought up to say nothing. So I think all the things that make you shy, like how you see your own body and your upbringing prevent you from doing self-examinations."

5.8 CONCLUSION

In this chapter the results from the qualitative aspect of the study were presented. From these results it has been demonstrated that although participants indicated that breast health is important to them, they do not prioritise performing any of the screening tests available to them. Many participants neglect their own health as well as breast health. They do not make or have the time to make an appointment to go for a mammogram or to attend wellness days organised by their medical aid or employer. There is a misconception that a mammogram is painful which in some instances prevents women from going and many are also shy and feel that a mammogram invades their privacy as they do not want people to examine that private area of their body. The most prevalent source of information is Google being used by most participants if they need more information on breast health. Participants indicated that the wellness days presented by the medical aid or employer are not always conveniently situated and are time consuming as they need to travel to attend screening tests.

The participants all indicated during the interview that they do not have a proper or dedicated platform to speak to students about breast health. It is usually not relevant to the subject that they are teaching and therefore does not seem appropriate to discuss breast health with the students they are teaching. Furthermore, participants indicated that they are more inclined to talk about breast health to family members and friends once someone close to them is diagnosed with breast cancer.

This chapter presented the results obtained from the analysis of the qualitative section of this study, to achieve the objectives formulated in Chapter one. The objectives were to explain the practises of breast health and/ or the lack thereof and to explain the attitude and awareness of the healthcare educators related to

breast health. The results obtained in this chapter, along with the results obtained from the quantitative aspect in Chapter four, will be merged and presented in Chapter six.

6 CHAPTER SIX – DISCUSSION AND MERGING OF THE DATA

6.1 INTRODUCTION

In this chapter, the results from the quantitative and qualitative aspect of the study will be integrated to address the research objectives. The main aim of this study was to describe and explain the awareness, attitude and practises of breast health, and will be discussed in this chapter. The qualitative aspect of the study sought to explain some of the findings obtained in the quantitative analysis. As such, the results obtained from the quantitative aspect of this study, informed the qualitative aspect to seek reasons for some of the unique findings. By making use of Saldana's code to assertions, five main themes along with their sub-themes were identified (Section 5.2) during the analysis of the qualitative aspect of this study. In this chapter, some findings will be presented from the quantitative aspect and explained by means of the findings from the qualitative aspect. This chapter will be presented in three main sections, according to the awareness, attitude, and practises of breast health. The five main themes and sub-themes are incorporated into the relevant sections.

Table 6.1: Merging of quantitative and qualitative results' main findings

Key concept	Quantitative results	Qualitative themes and sub-themes	Supporting quote
Practises	47,3% of participants do BSE at irregular intervals or never	Importance of breast health • *Practising of screening tests*	*P7, L19-22 "I have read about it and I have seen pictures on how to do it. When I was still younger I used to check, because I think when my breasts were still growing and I would feel that "is this supposed to be like that or is this supposed to be this high", but growing up I have not been checking"*
	Only 36,4% participants see a physician annually	Importance of breast health • *Practising of screening tests*	*P10, L21-26 "I tend to avoid doctors, because I bring forth these emotions that I carry that you know that is a person that I want to avoid, even being in the medical field, so the less I have to deal with it the better, in a nutshell. The other reason was when I had to do the limited mammogram, I had severe pains underneath for example my two armpits and at that time I went for it, it was a strange feeling so I was a bit concerned and at that time I wasn't diagnosed with any cancer so I just wanted to know what was happening and understand my body then and because it*

Key concept	Quantitative results	Qualitative themes and sub-themes	Supporting quote
			was below 40, they said I needed to do a limited mammogram to ensure that nothing was happening."
Practises	51,2% of participants have never done a mammogram and 13,2% do it at irregular intervals	Importance of breast health • *Practising of screening tests*	*P8, L8-11 "(with reference to why the participant would delay breast health issues) yes, it is true, it is sometimes just too much effort to make an appointment and to get around doing it and with the fast-paced life. And it is also because people don't always regard it as urgent or important. You don't feel any pain, so it is easy to postpone it."* *P8, L268-272 "I don't think it is that bad (referring to a mammogram) but I think sometimes women fear these really uncomfortable examinations and I must say I have been twice and the people were professional and it wasn't that bad. You must just make a point of going. Actually, if you have an appointment, you will go."*
	Delay issues 15.5% yes	Importance of breast health	Time is the main concern (not prioritising it)

Key concept	Quantitative results	Qualitative themes and sub-themes	Supporting quote
Practises	49,6% only seek professional help once a problem is detected	• *Reasons for delaying issues regarding breast health*	*P8, L15 "usually when you get an appointment (for a mammogram) then you have to go. It is just the dedication to put that time aside"* *P9, L11-12 "I think it is time, for the most part it is not making the time. It is making the time to do it."*
	Student talk 20,1%	Discussion of breast health • *Healthcare educators*	*P8, L86-88 "I have never thought about talking to students and I feel I might be talking out of my place but hear what you say. Because we are health care workers, it is actually the right place."* *P10, L300-301 "so in any case, you know to speak about breasts in my class now. It would be too embarrassing. I would probably go red as much as the students would go red."*
	Colleague talk 24,8%	Discussion of breast health	*P10, L145-149 "actually it is not about that I am shy, it is because nothing has happened. Since only when it happens then we alerted to the fact that we must be on*

Key concept	Quantitative results	Qualitative themes and sub-themes	Supporting quote
Practises		• *Healthcare educators*	*guard. So, we have very irresponsible responses to this. We are very irresponsible all in all, that is what I think. We never spoke about breast cancer here amongst our colleagues for example."*
	Family talk 41,9%	Discussion of breast health • *Social setting*	*P7, L89 "I have only spoken to my mom about it, that is when I found that is when she goes for a mammogram"* *P10, L135 "not until it became a problem"*
Attitude	Breast health is important 94.6%	*Importance of breast health* • *Practising of screening tests*	*P3, L2-3 "I think it is very important but I think I do not pay enough attention to it, for example I have not been for a mammogram yet and I am 44 years old."*
	BSE importance 95,4%	Importance of breast health • *Practising of screening tests*	*P4, L3-5 "I view myself as being very healthy. Once in a while I would do a BSE, and I don't have breast cancer in my family, so I think I am healthy, and I can go on. So, I think on the negative spectrum of not caring"*

Key concept	Quantitative results	Qualitative themes and sub-themes	Supporting quote
Attitude	Screening is important was agreed upon by 82,1% of participants	Importance of breast health • *Early detection of breast cancer*	*P9, L40-43 "I think screening tests are important, because they help you pick up a problem or a potential problem. So I would say screening is the best because I don't think you can ever be exempt from anything and if you have the facilities to do it, we have medical aid, I could not see why you shouldn't screen."*
Awareness	Know the correct way to perform BSE 76%	Importance of breast health • Practising of screening tests	*P9, L32-35 "when I remember (participant refers to when she does BSE), at times when I am teaching my daughter, because they also teach them about that in school, I think it is in life orientation. She says they say you should do breast examination often. So, I just want guide her to do it. I am not sure if I am doing it right, but I am showing her how."*
	Early detection of breast cancer is important 99,3%	Importance of breast health • *Early detection of breast cancer*	*P3, L64 "I think it is very important and I am sure that it can improve your outcomes."* *P10, L266-269 "I think the process of doing together all in one (referring to a screening test and awareness*

Key concept	Quantitative results	Qualitative themes and sub-themes	Supporting quote
Awareness			*campaigns) because you know what, in a time driven space, I might have an awareness thing, but for me to get to the x point of getting it done, might also be a time delay and time is not waiting for the disease. It is happening already, or it has already happened."*
	Treatment for breast cancer is beneficial 95,4%	Importance of breast health • *Early detection of breast cancer*	Participant 4 disagreed: *P4, L66-69 "there is so many cases that I know of and maybe technology also changed, but you see so many women with breast cancer and that they go through horrendous treatments and you quality of life is just gone and then it comes back."*

6.2 AWARENESS OF BREAST HEALTH

The first concept of discussion is the participants' awareness of breast health. Results from both the quantitative and qualitative aspects of this study indicated that the participants are aware of their breast health, they know how to practice BSE, and they know the difference between BSE and CBE. According to literature, early detection of breast cancer is important to decrease breast cancer mortality. One of the recommended ways to detect breast cancer is to use BSE which is relatively simple to perform and a low-cost method. It also enables a woman to become familiar with her own breast tissue and therefore should be able to notice any change in her breast a lot sooner.[15] BSE should be used in combination with mammography.[54] A study to determine whether CBE can reduce the incidence of advanced breast cancer disease and mortality found that CBE did improve early detection which then led to improved treatment therapy and ultimately survival rate of the diagnosed women.[55] BSE and CBE is also regarded as an important screening instrument for women at high risk for breast cancer and for those who are difficult to diagnose with mammography only. For instance, those who have very dense breast tissue, breast prosthesis and those who have concluded radiation therapy.[56] However, given all this information, participants in this study do not engage in practising BSE or CBE.

Even though participants seem to be aware of their breast health, they do not engage in wellness programmes offered by both UP and their medical aid schemes. Participants indicated that the wellness campaigns hosted by UP and/ or their medical aid schemes are not always accessible and convenient to attend, because the events are not always held on all campuses.

A participant indicated that her geographic location influences the impact of breast cancer wellness campaigns. In rural areas the breast cancer awareness campaigns were more visible in terms of advertisements, banners etc. In urban areas, the effort and impact of the breast cancer wellness campaigns were not as effective as in rural/ smaller areas.

During the quantitative aspect of this study, participants were tasked to identify risk factors associated with breast cancer applicable to them. In essence, more than 80% of participants knew about nine of the 11 risk factors for breast cancer as determined by the WHO.[1] Numerous risk factors for breast cancer have been well recognised but it is not always possible to determine which risk factors would cause a specific woman's breast cancer. A family history of breast cancer accompanied by mutations in specific genes BRCA1, BRCA2 and p53 contribute to the highest risks for breast cancer. These mutations are uncommon and only contribute small proportion of the total amount of breast cancers diagnosed. Other important risk factors which are more typically found such as use of birth control pills, hormone replacement therapy, early menarche, late menopause and childbirth at a later age contribute more to the overall breast cancer diagnosis problem. Very importantly there are notable modifiable risk factors which contribute to 21% of all breast cancer deaths world-wide and these are overweight and obesity, physical inactivity and alcohol use.[1] Even though participants were aware of the risk factors associated with breast cancer, it did not encourage them to engage in breast health screening tests.

Furthermore, participants are more inclined to participate in BSE or CBE when breast cancer becomes a reality for a family member/ friend, or themselves. Participants also indicated that their family history of breast cancer made them more aware of breast health.

Another key factor in the awareness towards breast health is the importance of early detection of breast cancer. In South Africa, several breast cancer awareness campaigns run during the month of October, with the aim of encouraging women to participate in screening tests for breast cancer. Participants raised concern over the fact that awareness campaigns are only done once a year, instead of more frequent events. Some also indicated that the campaigns should be more prominent in the severity of the disease. Furthermore, participants indicated that they agree that early detection of breast cancer can improve the treatment outcomes thereof. Some participants believe that the

treatment for breast cancer is more effective when it was detected in earlier stages.

Sources of information are also a key driver for participants' awareness towards breast health. All the participants forming part of this study have access to the UP Library and databases for academic resources. Given this information, participants do not make use of available academic resources, but instead make use of general internet sources. Participants identified sources for breast health as magazine articles, email newsletters, and radio and TV campaigns. However, the biggest source of information was identified as Google. Majority of the participants in this study indicated that they are more inclined to do a quick Google search on breast health, rather than to consult a professional or engage in BSE or CBE. Kotepui *et al* also found in their study that participants either got their information from medical personnel or the Internet.[16] A few participants indicated that they rely on the information provided by their gynaecologists or oncologists and radiologists. In a study done by Seimenis *et al*, it was found that information was also exchanged on social media platforms such as Twitter. In the United States there are tweet chats organised by radiology journals on topics of general interest and it was found that the potential for these journals to reach the maximum amount of people, they need to be interesting and informative on the topics the people are interested in. They found that more research needs to be done to evaluate how the information provided on social media platforms could increase participation in screening programmes. This article also highlighted that their study indicated by means of a review of literature that the screening benefits outweigh the radiation risks.[47]

Some participants indicated that the questionnaire distributed in the quantitative aspect of this study, increased awareness of breast health in their immediate environments. Furthermore, participants identified that they would not have participated in discussions of breast health if they were not contacted to participate in this study. This provided an opportunity for discussions on breast health in their working environment with their colleagues. This might aid in

encouraging healthcare educators to be more open and willing to discuss issues regarding breast health with family members and/ or friends and students.

6.3 ATTITUDE TOWARDS BREAST HEALTH

Attitude towards breast health is the second concept for discussion. From both the quantitative and qualitative aspects of this study, the participants' attitude toward breast health shows negligence in terms of their own wellbeing as well as those in their immediate environment. Participants indicated that breast health is important to them and that it is important to perform BSE, as well as going for a screening mammogram. It still does not reflect in their practises thereof. In a study done by Solomon *et al* ,it was found that participants do not perform BSE regularly and some of the most common reasons were low confidence in the method of BSE, a low belief in the importance thereof, low endorsement by others, high anxiety and difficulty remembering monthly practice. Of these reasons, the most important one indicated by most of the participants in their study was not remembering to do BSE.[57]

Participants indicated that breast health/ breast cancer is not a topic of discussion in their working environment, which then leads to their lack of discussions with students. This can pose a problem, as educators in general are regarded as role models by their students and in their communities. This is highlighted in the literature as well.[6,8,38] Health care workers' knowledge is regarded highly in the community and healthcare educators may play an important role in providing important information about breast health and other health matters.[16] They are also in the position to create more awareness amongst students and personnel.

Some participants indicated that once a family member/ friend is diagnosed with breast cancer, their attitude toward breast health tends to change. This encourages them to go for screening tests and to perform BSE. Furthermore, a family history of breast cancer influences the participants' attitude toward breast health as well. These participants' family history increased their knowledge of breast cancer and lead to a realisation of their own risk for developing breast

cancer. This is in line with the health belief model (HBM) that proposes that behaviour can be influenced by events, people or other things that lead people to alter their behaviour. An example given by them was the illness of a family member, media campaigns and reports, advice from others and reminder post cards from health care providers.[35]

A few participants indicated concerns regarding the effort it takes to make an appointment to go for a screening mammogram. This is an indication of participants' negative attitude toward breast health. Participants tend to be reluctant to go for a screening mammogram, as it is generally time consuming, and is regarded as being inconvenient. Furthermore, participants lack the dedication to prioritise screening tests, as they are perceived to be less important than an acute illness that requires immediate medical attention. Once participants experience pain or discomfort, they are more inclined to take immediate action and seek medical advice.

A few participants indicated that they would rather live in denial regarding their breast health, than to confront the event of an undesired outcome from screening tests. On the other hand, some participants would rather be ignorant about their breast health, thinking that they might be too young or too old to be at risk for breast cancer. Furthermore, these participants are of the belief that screening tests are meant for people other than themselves, they would rather prefer not knowing the results from screening tests. In a study done by Umeh and Jones, their participants also found it difficult to perform BSE as it involves the risk of finding breast cancer symptoms. It was also found that their hindrances to BSE were actually merely excuses to not face the reality that might include further difficult decisions.[36]

An interesting factor that came to light during the qualitative analysis is that one participant is of the belief that treatment options for breast cancer does not necessarily improve the quality of life for the individual. The participant's attitude toward breast health/ cancer is based on personal experience. Finally,

participants' religion and cultural beliefs did not influence their attitude toward breast health, nor their practising thereof.

A surprising finding in this study was that culture and religion was not reported to affect the attitude towards breast health. However, in other studies done for cultural beliefs regarding breast health, it was found that in rural Kenyan communities the emphasis is not on breast health but rather on family planning, HIV and Malaria. Amongst Kenyan women it was also found that their husbands hindered them from going for screening tests as they believed that if they are sick, it can also influence the husband's health.[37] The opposite was true for Lebanese women as it was found that their husbands were very supportive of breast screening tests. It was also found that their level of education had a greater role in these women regarding screening tests.[45] Korean women were not adhering to breast screening tests as they felt embarrassed, as it is a private area that they do not discuss or want examined by any other people. It was also found amongst traditional Korean women as opposed to Korean women married to Caucasian men that the traditional Korean women adhere less to breast screening tests.[44]

6.4 PRACTISES OF BREAST HEALTH

The third concept under discussion is practises of breast health. Most participants were negligent in adhering to recommended screening practises. Reasons for this was found in the interviews where the participants indicated that they had bad experiences in a previous mammogram, they lacked faith in the results thereof and were shy to be examined. In studies done by Lagerlund *et al* it was also found that the first mammogram experience can prevent women from doing follow up mammograms if they had a previous bad experience.[29]

Participants seemed to have a misconception that a mammogram was painful and therefore many refused to go. This needs to be altered as it prevents people from going for important screening tests. To make time to make an appointment

and to make time to go for a mammogram was indicated as being some of the hindrances of why participants neglected to have a mammogram done.

In a study done by Horsley *et al* the importance of undergoing a baseline mammogram as part of screening mammography was studied. In that study they concluded that there was a need for women to be made aware of the importance of baseline mammography as part of basic breast cancer screening principles. A baseline mammogram can decrease false positive mammography later and therefore reducing costs, discomfort and pointless extra testing and procedures like biopsies.[46]

Fear of the unknown and fear of cancer were two factors indicated by participants to contribute to their reluctance to having a mammogram done. In a study done by Abelson *et a*l it was also shown that women fear a breast cancer diagnosis and that it makes them anxious to then go for the screening. In that study they concluded that women should be well informed about the risks and benefits of screening by means of conversation.[58]

False positive results from screening tests can cause unwanted stress for patients. In some interviews it became evident that participants had the experience themselves or close friends experienced this phenomenon of false positive results. This means that patients get called back to have more tests done due to uncertainty whether a lesion is benign or malignant. In many instances a biopsy is done, and this can cause discomfort or pain, anxiety, and increased costs. In the end all is then normal, but the patient is stressed and worried until the results are known. According to Horsley *et al* many studies have found that this can be avoided when a baseline mammogram is available for comparison.[46]

Some participants indicated that they are not sure what to feel for when they do BSE. They are not sure due to the composition of their breast and not sure if what they feel is normal or can be something. Furthermore, they only do BSE when they remember and at irregular intervals. This is quite alarming as it can be

regarded in many instances as the first indicator that something is wrong and to consult a practitioner. This was also found by a study done by Hailey *et al* who found that most women do not practice BSE monthly and that those who have a family history of breast cancer practice BSE more often than those without a family history. Women are more inclined to practice BSE when they are reminded of it.[25]

Participants delay breast issues because of shyness, in many instances you are too shy to discuss personal matters like breast health with others as you were brought up with the perception that it is a private matter you do not discuss with others. The indirect implication is that health care educators have a greater responsibility to train and educate their students as they will become the next health care practitioners or workers on which patients, colleagues and relatives may rely on for teaching them about breast health for instance how to perform BSE.

This study found that the healthcare educators do not discuss breast health with students. Some reasons included that they found no proper platform to do so, and they find it many cases inappropriate as they feel shy themselves. Umeh and Jones argue that healthcare educators should first establish students' views about early detection and how they view breast cancer as a whole to be able to provide students with relevant guidance and advice.[36]

6.5 SOCIO-DEMOGRAPHIC ASSOCIATIONS BETWEEN BREAST HEALTH ATTITUDE, AWARENESS AND PRACTISES

According to the results from the quantitative data collected and analysed in this study, as presented in Section 4.3 and 4.8, there was no correlation between age, awareness of breast health and attitude towards breast health. One would expect an association between younger/ older participants based on the fact that mammography screening is recommended above 40 years of age.[1] In a study conducted by Akhigbe and Omuemu, it was found that only 3,1% of their participants above 40 years of age were adhering to practising mammography.[59]

It was also found amongst participants in a study in Lagos with only 7,8% practising mammography.[60] In Saudi Arabia and Singapore the practising rates were significantly higher amongst women in the recommended age of practising mammography with 42,7% and 35% respectively.[34,61-62] There was also no association found between gender and attitude towards breast health.

Gender was also not associated with awareness of breast health. Male breast cancer is a rare disease that only accounts to 0.1% of all cancers in males where 25% of all cancers in women is breast cancer. The male breast cancer is therefore still very under studied and less understood.[62] According to Da Silva, it was found that a lot still needs to be done to minimise the stigma around male breast cancer as well as misperceptions thereof to encourage early diagnosis and better psychological and social support for males with breast cancer.[62]

Marital status was associated with awareness of breast health with those being married or in a relationship having higher awareness scores. However, it was not associated with attitude towards breast health. In studies conducted by Tuck *et al,* Kotepui *et al* and Elias *et al*, it was found that married women or women in relationships, tend to have better screening practises which include BSE, CBE and mammography, than unmarried women. Married women have more support from their husbands in terms of emotional and economic aspects.[16,45,63]

There was a correlation between family history of breast cancer and awareness and attitude. This was also found in studies done by Tastan *et al* and Paalosalo *et al* , that indicated a higher degree of susceptibility towards breast cancer.[42,64]

6.6 CONCLUSION

In this chapter the results from the quantitative and qualitative aspects of the study were merged. As demonstrated in Chapter four and also in the merging of the results in this chapter, most participants indicated that breast health is important to them. Participants also agreed that BSE and screening is important as it forms part of early detection of breast cancer which they also found to be

important. Participants in this study know the correct way to perform BSE, yet less than half perform BSE on a regular basis. This contradiction was also found in the practising of CBE and mammography, where participants indicated that it is important, but their practises do not reflect this.

Time was found to be the major reason why participants delay issues regarding their breast health. Participants also indicated that a lack of prioritising breast health could be a reason why the practising thereof is so poor.

Another finding of this study was that healthcare educators do not find it important to discuss breast health matters with students. Some of the reasons cited included: that the topic is not relevant to the subject they teach and that participants are too embarrassed to talk to students about breast health. Participants indicated that they trust healthcare providers with information regarding breast health and this was also found in various literature studies. Breast health is also not discussed amongst colleagues as many find it a topic not to discuss with colleagues due to shyness.

Chapter seven follows next and that is where the final conclusion of the entire study is presented.

7 CHAPTER SEVEN – CONCLUSION

7.1 INTRODUCTION

In this chapter a summary of the main findings from the study will be presented. These will be presented along the research objectives to demonstrate that they have been met in addition to some of the major findings of this study. This chapter will further present the strengths and limitations of the study. Recommendations will be made according to what was found to be significant from the study outcomes.

7.2 SUMMARY OF THE MAIN FINDINGS OF THE STUDY

As demonstrated in the previous chapter by the merging of the quantitative and qualitative results findings were made. These were that breast health and BSE is important to the participants and that they know how to perform BSE. However, the participants' practises of CBE and mammography were not prioritized, and time constraints were indicated as a major reason for this. The participants indicated that they did not find it important to talk to students or colleagues about breast health. The findings are now discussed in relation to the research objectives.

The first objective was: *to describe and explain the practises of breast health amongst healthcare educators in the Faculty of Health Sciences*.

This can be related to the following findings:

Early detection of breast cancer is regarded as important by most participants in this study and is one of the main strategies according to WHO to reduce the mortality rate of breast cancer. Bearing this in mind it is alarming to have found that the participants do not practice breast screening tests as recommended by the WHO. Some participants in this study (47.3%) indicated that they do BSE at

irregular intervals or never. Only 36.4% see a physician annually and only 13.2% do mammography at irregular intervals. Reasons indicated were that they tend to avoid doctors, forget to do it that they find it too much effort to make an appointment to go for a mammogram.

Participants also delay issues regarding breast health due to time constraints and 49.6% of participants indicated that they only seek professional help once they detect a problem.

Discussion of breast health is not being done amongst students, colleagues and family members as participants do not regard it as being important. Participants have indicated in the quantitative aspect of the study that only 20.19% find it important to speak to students about breast health. During the qualitative aspect of the study, reasons for this was given as being too embarrassed to do so and not being relevant to the subject material or topic they are teaching. They also indicated that there was no platform or opportunity created for them to discuss breast health with students. Health care educators have a responsibility to train students that become future health care providers in breast health, which need to have the knowledge and confidence to speak to patients about it.

The second objective was: *to investigate the awareness and attitudes of breast health amongst healthcare educators.*

This can be related to the following findings:

Most participants indicated that only once someone close to you is affected by breast cancer, it becomes a reality to them, and makes them more aware of the disease and its effect on the person affected, as well as everyone in their immediate environment. Then only do they tend to prioritise breast health. The importance of breast health was represented by 94.6% of participants. Most participants (95.4%) indicated that BSE is important and 76% know how to

correctly perform BSE. Most participants (99.3%) indicated that early detection of breast cancer is important and (82.1%) agreed that screening is important and that treatment for breast cancer is beneficial. Most participants should be aware of breast health as so many campaigns held to create awareness for breast cancer. However, participants in this study indicated that the wellness days created by their employer and medical aid are not accessible enough and should be altered to encompass severity of the disease, the importance of screening, and where and how often it should be done. The importance of a baseline mammogram should be depicted in these campaigns. There is a need to provide in-depth details on breast cancer as a disease and its course and treatment.

The third objective was: *to describe the relationship between demographic variables and awareness, attitude, and practises of breast health.*

This can be related to the following findings:

In this study it was found that there was a significant correlation with both attitude and awareness towards breast health. Additionally, marital status was associated with awareness of breast health with those being married/ in a relationship having higher awareness scores. Furthermore, there was an association between family history of breast cancer and attitude toward breast health. However, there is no association between family history of other cancer and awareness and attitude toward breast health. There was also no association between gender and awareness and attitude towards breast health.

7.3 STRENGTHS OF THE STUDY

The concept of breast health was studied where most other studies conducted research relating to only BSE and were in many instances', studies about knowledge, attitude and practises.

This study contributes to the scientific knowledge of how important breast health is perceived by health care Educators.

The study can also contribute to the University's curriculum to maybe find a place where to incorporate breast health in a compulsory subject for all students.

The study included health care educators which play a pivotal role in the training of future health care professionals.

The study design was unique by using the qualitative aspect to explain findings from the quantitative aspect of the study.

The study created some awareness amongst participants whilst completing the online questionnaire in the quantitative aspect of this study as well as those participating in the interviews.

7.4 RECOMMENDATIONS

Participants suggested that more campaigns should be held during the year and not only in October when it is breast cancer awareness month. These campaigns should reach all age groups and should be invested in by all health care workers. All health care workers have a role to play, whether by giving information to patients or colleagues or to set up posters and arranging for wellness days in which the mammography screening is accessible to all. This means being on all campuses and close enough that not too much time will be spent to have your screening test done.

According to some participants, awareness campaigns should emphasize the fact that a mammogram is not painful and should be done annually. The misconception of a mammogram being painful should be rectified and the advantages of having a mammogram should be emphasized as opposed to not doing it due to fear of pain or radiation. To solve this one should have the correct information on posters and other information material to rather give the patient

more information to be able to make an informed decision as to whether a mammogram is good or bad for you.

Some students do breast feeding as part of their curriculum. It is recommended that a multidisciplinary approach is used for these instances. One could consider teaching the imaging part- mammography and ultrasound, as well as nutrition which could also be added to other disciplines' curriculum, in example the community engagement programme.

Health insurance stakeholders such as medical aids should tap into a preventative approach by giving regular and updated information on a regular basis to their members. This can enable them to make informed decisions about their health.

It remains our responsibility to explain to students, family members, colleagues, and patients in such a way that they understand us. The severity of the disease should also be explained as to give some people a wakeup call. This links to guiding accurate information about the pros and cons of doing a mammogram. This should be more visual as to encourage people to do what they need to do.

Due to time constraints experienced by all participants it should be considered to host wellness days on all campuses to be more accessible to all and therefore will require less time. This can then motivate more participation from all personnel.

A dedicated platform should be created for educators to be able to discuss breast health and other health matters with students.

Employers could include some form of reward system or incorporate certain screening tests like a mammogram in an annual medical examination as an employment requirement for healthcare educators. In many other huge companies, it is an industry requirement to have a mammogram annually and

some also require a mammogram as part of first medical examinations for employment.

7.5 LIMITATIONS OF THE STUDY

Only healthcare educators of the Faculty of Health Sciences from one University in South Africa were questioned and interviewed. A more accurate and generalizable picture of the awareness, attitudes and practises of all educators could be found if the study was broadened to include all faculties and several universities.

Some of the points that could have impacted the study negatively include:

- The envisioned response rate could not be achieved due to poor responsiveness of the online questionnaires. The poor response rate may have impacted the significance of the study.
- As healthcare educators generally time-consuming obligations within the Faculty of Health Sciences, it was challenging to set interview times that suited all the interviewees.
- Interviews could be lengthy due to participants asking advice and sharing a lot from personal experience that might not necessarily be relevant to the research.

Correlations between socio-demographic variables and participants' attitude, awareness and practises presented challenges statistically. Hence the low response rate may have skewed the results which impacts the results. As such, only associations could only be determined between socio-demographic variables and attitude and awareness towards breast health.

7.6 CONCLUSION

This research aimed to describe and explain the awareness, attitude and practises of healthcare educators related to breast health through use of a mixed-methods study.

Despite the positive attitude and awareness of breast health among healthcare educators who participated in this study, the practises of breast health are somewhat alarming. The main contributors to this being what can be regarded as participants' unwillingness to prioritise breast health, healthcare educators' reluctance to discuss the importance of breast health with students and participants' personal beliefs of breast health, which leads them to be shy, fearful and embarrassed to practice breast health. The participants however indicated that their culture and religious beliefs did not influence their attitude and practises of breast health.

The severity of the breast cancer as a disease needs to be highlighted by campaigns in such a manner that it gets noticed by the public and therefor reaches more people. Healthcare educators need to realize their importance as role models for their students and colleagues in their own breast health practises. Health care educators should also take up the role to speak about breast health matters to students, colleagues, and family members. Such a role could promote open dialogue about addressing breast health issues through early detection, adhering to screening practises and generating a positive attitude towards one's own breast health.

8 REFERENCES

1. World Health Organization. WHO [Internet] Breast cancer : Prevention and control. Geneva, Switzerland: World Health Organization; 2016. Available from: http://www.who.int/cancer/detection/breastcancer/en/.
2. Nelson AL. Controversies regarding mammography, breast self-examination, and clinical breast examination. Obstet Gynecol Clin North Am. 2013; 40(3):413-27.
3. Tarrant M. Why are we still promoting breast self-examination? Int J Nurs Stud. 2006; 43(4):519-20; discussion 21-3.
4. Corbex M, Bouzbid S, Boffetta P. Features of breast cancer in developing countries, examples from North-Africa. Eur J Cancer. 2014; 50(10):1808-18.
5. Matatiele PR, Van den Heever WMJ. Evaluation of breast cancer awareness among women presenting with newly diagnosed breast disease at Universitas Hospital (Bloemfontein, South Africa). South African Family Practice. 2008; 50(4):69-c.
6. Erdem O, Toktas I. Knowledge, attitudes, and behaviors about breast self-examination and mammography among female primary healthcare workers in Diyarbakir, Turkey. Biomed Res Int. 2016; 2016:6490156.
7. Nde FP, Assob JCN, Kwenti TE, Njunda AL, Tainenbe TRG. Knowledge, attitude and practice of breast self-examination among female undergraduate students in the University of Buea. BMC Res Notes. 2015; 8:43.
8. Soyer MT, Ciceklioglu M, Ceber E. Breast cancer awareness and practice of breast self examination among primary health care nurses: Influencing factors and effects of an in-service education. J Clin Nurs. 2007; 16(4):707-15.
9. Ramakant P, Singh K, Jaiswal S, Singh S, Ranjan P, Rana C, et al. A survey on breast cancer awareness among medical, paramedical, and general population in North India using self-designed questionnaire: A prospective study. Indian J Surg Oncol. 2018 Sep; 9(3):323-327.
10. Gangane N, Ng N, Sebastian MS. Women's knowledge, attitudes, and practices about breast cancer in a rural district of Central India. Asian Pac J Cancer Prev. 2015; 16(16):6863-70.

11. Andreeva VA, Pokhrel P. Breast cancer screening utilization among Eastern European immigrant women worldwide: A systematic literature review and a focus on psychosocial barriers. Psychooncology. 2013; 22(12):2664-75.
12. Foxall MJ, Barron CR, Houfek JF. Ethnic influences on body awareness, trait anxiety, perceived risk, and breast and gynecologic cancer screening practices. Oncol Nurs Forum. 2001; 28(4):727-38.
13. Miller AB, Baines CJ. The role of clinical breast examination and breast self-examination. Prev Med. 2011; 53(3):118-20.
14. Alwan NAS, Al-Diwan JKA, Al-Attar WM, Eliessa RA. Knowledge, attitude & practice toards breast cancer & breast self examination in Kirkuk University, Iraq. Asian Pacific Journal of Reproduction. 2012; 1(4):308-11.
15. Yurdakos K, Gulhan YB, Unalan D, Ozturk A. Knowledge, attitudes and behaviour of women working in government hospitals regarding breast self examination. Asian Pac J Cancer Prev. 2013; 14(8):4829-34.
16. Kotepui M, Piwkham D, Chupeerach C, Duangmano S. Knowledge, attitudes and practice of breast cancer screening among female personnel of Walailak University. Health Expect. 2015; 18(6):3069-78.
17. Azubuike SO, Okwuokei SO. Knowledge, attitude and practices of women towards breast cancer in Benin City, Nigeria. Annals of Medical and Health Sciences Research. 2013; 3(2):155-60.
18. Creswell JW. A concise introduction to mixed methods research. Thousand Oaks, California : SAGE; 2015.
19. Hall R. Mixed methods: In search of a paradigm.In: Le T, Le Q, editors. Conducting research in a Changing and Challenging world. Nova Science Publishers Inc; 2013.p. 71-78.
20. Ansari S, Panhwar AH, Mahesar GA. Mixed methods research: Ontological, epistemological and methodological underpinnings. ARIEL-An International Research Journal of English Language and Literature. 2016; 27.
21. Martyn D. Communities of practice: A research paradigm for the mixed methods approach. Journal of Mixed Methods Research. 2008; 2(3):270-83.
22. Krefting L. Rigor in qualitative research: The assessment of trustworthiness. Am J Occup Ther. 1991; 45(3):214-22.

23. Hornby AS, Turnbull J. Oxford advanced learner's dictionary of current English. 8th ed. / managing editor, Joanna Turnbull. ed. Oxford: Oxford University Press; 2010.
24. Liu CY, Xia HO, Isaman DM, Deng W, Oakley D. Nursing clinical trial of breast self-examination education in China. Int Nurs Rev. 2010; 57(1):128-34.
25. Hailey BJ, Bradford AC. Breast self-examination and mammography among University staff and Faculty. Women Health. 1991; 17(3):59-77.
26. Birhane N, Mamo A, Girma E, Asfaw S. Predictors of breast self - examination among female teachers in Ethiopia using health belief model. Archives of Public Health. 2015; 73(1):39.
27. Miles RC, Onega T, Lee CI. Addressing potential health disparities in the adoption of advanced breast imaging technologies. Acad Radiol. 2018; 25(5):547-51.
28. Shah TA, Guraya SS. Breast cancer screening programs: Review of merits, demerits, and recent recommendations practiced across the world. Journal of Microscopy and Ultrastructure. 2017; 5(2):59-69.
29. Lagerlund M, Hedin A, Sparén P, Thurfjell E, Lambe M. Attitudes, beliefs, and knowledge as predictors of nonattendance in a Swedish population-based mammography screening program. Prev Med. 2000; 31(4):417-28.
30. Mainiero MB, Moy L, Baron P, Didwania AD, diFlorio RM, Green ED, et al. ACR appropriateness criteria® Breast cancer screening. Journal of the American College of Radiology [Internet]. 14(11, Number 11 Supplement 1). [cited 2019, Mar 20]. Available rom: http://dx.doi.org/10.1016/j.jacr.217.08.044.
31. Pons-Vigues M, Puigpinos-Riera R, Serral G, Pasarin MI, Rodriguez D, Perez G, et al. Knowledge, attitude and perceptions of breast cancer screening among native and immigrant women in Barcelona, Spain. Psychooncology. 2012; 21(6):618-29.
32. Ramirez AG, Suarez L, Laufman L, Barroso C, Chalela P. Hispanic women's breast and cervical cancer knowledge, attitudes, and screening behaviors. Am J Health Promot. 2000; 14(5):292-300.

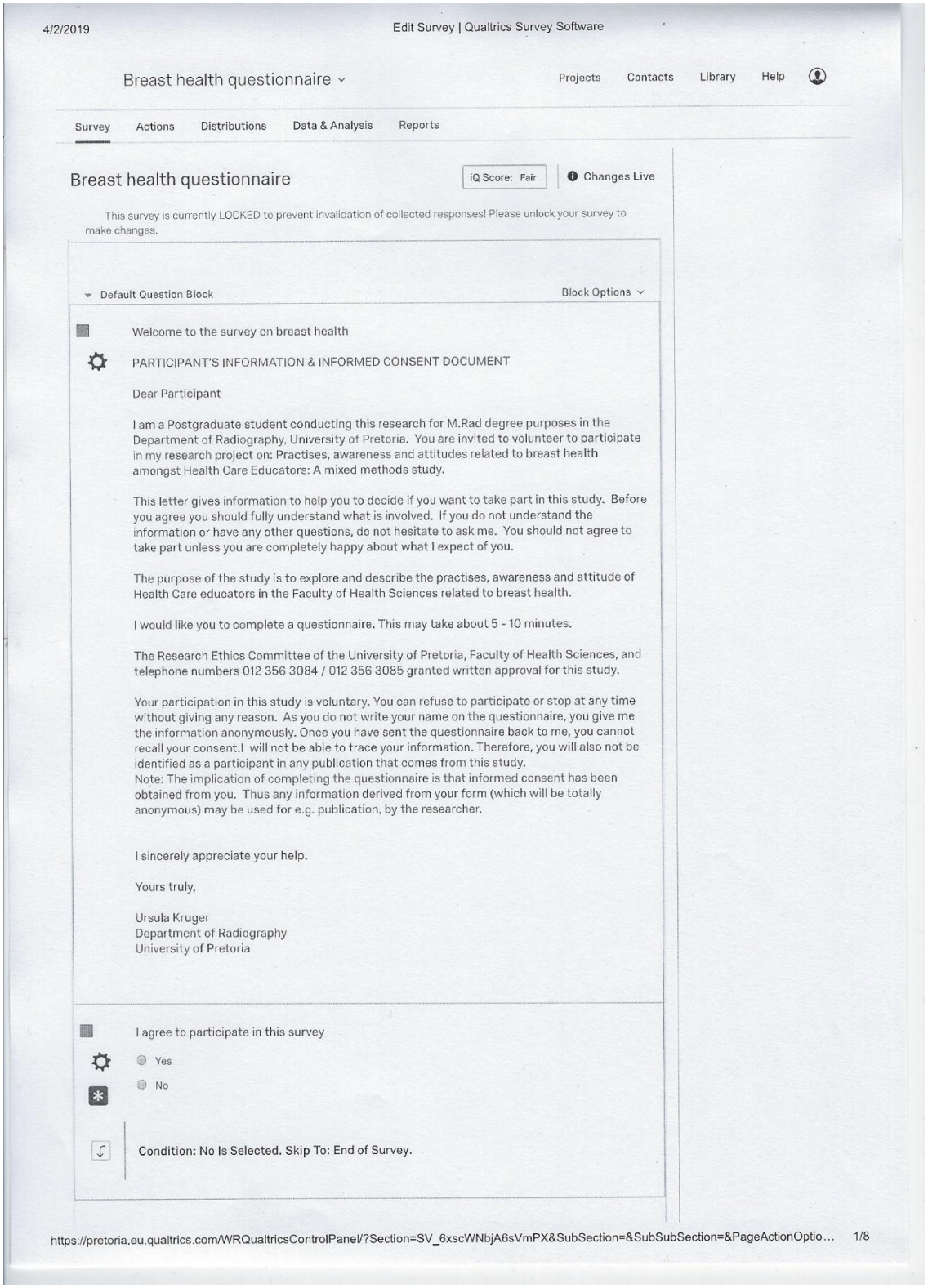
33. Kumar S, Imam AM, Manzoor NF, Masood N. Knowledge, attitude and preventive practices for breast cancer among health care professionals at Aga Khan Hospital Karachi. J Pak Med Assoc. 2009; 59(7):474-8.
34. El Bcheraoui C, Basulaiman M, Wilson S, Daoud F, Tuffaha M, AlMazroa MA, et al. Breast cancer screening in Saudi Arabia: Free but almost no takers. PLoS One. 2015; 10(3):e0119051.
35. Rosenstock IM, Strecher VJ, Becker HM. Social learning theory and the health belief model. Health Educ Q. 1988; 15(2):175-83.
36. Umeh K, Jones L. Mutually dependent health beliefs associated with breast self-examination in British female University students. J Am Coll Health. 2010; 59(2):126-31.
37. Muthoni A, Miller AN. An exploration of rural and urban Kenyan women's knowledge and attitudes regarding breast cancer and breast cancer early detection measures. Health Care Women Int. 2010; 31(9):801-16.
38. Ceber E, Yucel U, Mermer G, Ozenturk G. Health beliefs and breast self-examination in a sample of Turkish women academicians in a University. Asian Pac J Cancer Prev. 2009; 10(2):213-8.
39. O'Donnell S, Goldstein B, Dimatteo MR, Fox SA, John CR, Obrzut JE. Adherence to mammography and colorectal cancer screening in women 50-80 years of age the role of psychological distress. Womens Health Issues. 2010; 20(5):343-9.
40. Rice MS, Tworoger SS, Hankinson SE, Tamimi RM, Eliassen AH, Willett WC, et al. Breast cancer risk prediction: An update to the Rosner-Colditz breast cancer incidence model. Breast Cancer Res Treat. 2017 Nov; 166(1):227-240.
41. Davis J, Liang J, Petterson MB, Roh AT, Chundu N, Kang P, et al. Risk factors for late screening mammography. Curr Probl Diagn Radiol. 2019; 48(1):40-4.
42. Tastan S, Iyigun E, Kilic A, Unver V. Health beliefs concerning breast self-examination of nurses in Turkey. Asian Nurs Res (Korean Soc Nurs Sci). 2011; 5(3):151-6.

43. Kaltsa A, Holloway A, Cox K. Factors that influence mammography screening behaviour: A qualitative study of Greek women's experiences. Eur J Oncol Nurs. 2013; 17(3):292-301
44. Lee SY. Cultural factors associated with breast and cervical cancer screening in Korean American women in the US: An integrative literature review. Asian Nurs Res (Korean Soc Nurs Sci). 2015; 9(2):81-90.
45. Elias N, Bou-Orm IR, Adib SM. Patterns and determinants of mammography screening in Lebanese women. Prev Med Rep. 2017; 5:187-93.
46. Horsley RK, Kling JM, Vegunta S, Lorans R, Temkit H, Patel BK. Baseline mammography: What is it and why is it important? A cross-sectional survey of women undergoing screening mammography. J Am Coll Radiol. 2019; 16(2):164-9.
47. Seimenis I, Chouchos K, Prassopoulos P. Radiation risk associated with X-Ray mammography screening: Communication and exchange of information via Tweets. J Am Coll Radiol. 2018; 15(7):1033-9.
48. Creswell JW. Research design : Qualitative, quantitative, and mixed methods approaches. 4th ed.California: Sage; 2014
49. Johnson RB, Onwuegbuzie AJ, Turner LA. Toward a definition of mixed methods research. Journal of Mixed Methods Research. 2007; 1(2):112-33.
50. Grove SK, Burns N, Gray J. The practice of nursing research : Appraisal, synthesis, and generation of evidence. 7th ed. St. Louis: Elsevier; 2013
51. Fincham JE. Response rates and responsiveness for surveys, standards, and the journal. Am J Pharm Educ. 2008; 72(2):43.
52. Saldaña J. Researcher, analyze thyself. International Journal of Qualitative Methods. 2018; 17:1-7.
53. Fischer CT. Bracketing in qualitative research: Conceptual and practical matters. Psychotherapy Research. 2009; 19(4-5):583-90.
54. Secginli S, Nahcivan NO. Factors associated with breast cancer screening behaviours in a sample of Turkish women: A questionnaire survey. Int J Nurs Stud. 2006; 43(2):161-71.
55. Sankaranarayanan R, Ramadas K, Thara S, Muwonge R, Prabhakar J, Augustine P, et al. Clinical breast examination: Preliminary results from a

cluster randomized controlled trial in India. JNCI: Journal of the National Cancer Institute. 2011; 103(19):1476-80.
56. Coleman C. Early detection and screening for breast cancer. Semin Oncol Nurs. 2017; 33(2):141-55.
57. Solomon LJ, Flynn BS, Worden JK, Mickey RM, Skelly JM, Geller BM, et al. Assessment of self-reward strategies for maintenance of breast self-examination. J Behav Med. 1998; 21(1):83-102.
58. Abelson J, Tripp L, Sussman J. 'I just want to be able to make a choice': Results from citizen deliberations about mammography screening in Ontario, Canada. Health Policy. 2018; 122(12):1364-1371.
59. Akhigbe AO, Omuemu VO. Knowledge, attitudes and practice of breast cancer screening among female health workers in a Nigerian urban city. BMC Cancer. 2009; 9(1):203.
60. Odusanya OO, Tayo OO. Breast cancer knowledge, attitude and practice among nurses in Lagos, Nigeria. Acta Oncol. 2001; 40(7):844-8
61. Chong PN, Krishnan M, Hong CY, Swah TS. Knowlegde and practice of breast cancer screening amongst public health nurses in Singapore. Singapore Med J. 2002 Oct; 43(10):509-16.
62. da Silva TL. Male breast cancer: Medical and psychological management in comparison to female breast cancer. A review. Cancer Treatment Communications. 2016; 7:23-34.
63. Tuck NL, Consedine NS. Breast cancer screening: The role of attachment. Psychology, Health and Medicine. 2015; 20(4):400-9.
64. Paalosalo-Harris K, Skirton H. Mixed method systematic review: The relationship between breast cancer risk perception and health-protective behaviour in women with family history of breast cancer. J Adv Nurs. 2017; 73(4):760-74.

ANNEXURE A

-Informed consent document and questionnaire-



4/2/2019 Edit Survey | Qualtrics Survey Software

Breast health questionnaire ▾ Projects Contacts Library Help

Survey Actions Distributions Data & Analysis Reports

Breast health questionnaire iQ Score: Fair Changes Live

This survey is currently LOCKED to prevent invalidation of collected responses! Please unlock your survey to make changes.

Default Question Block Block Options ▾

Welcome to the survey on breast health

PARTICIPANT'S INFORMATION & INFORMED CONSENT DOCUMENT

Dear Participant

I am a Postgraduate student conducting this research for M.Rad degree purposes in the Department of Radiography, University of Pretoria. You are invited to volunteer to participate in my research project on: Practises, awareness and attitudes related to breast health amongst Health Care Educators: A mixed methods study.

This letter gives information to help you to decide if you want to take part in this study. Before you agree you should fully understand what is involved. If you do not understand the information or have any other questions, do not hesitate to ask me. You should not agree to take part unless you are completely happy about what I expect of you.

The purpose of the study is to explore and describe the practises, awareness and attitude of Health Care educators in the Faculty of Health Sciences related to breast health.

I would like you to complete a questionnaire. This may take about 5 - 10 minutes.

The Research Ethics Committee of the University of Pretoria, Faculty of Health Sciences, and telephone numbers 012 356 3084 / 012 356 3085 granted written approval for this study.

Your participation in this study is voluntary. You can refuse to participate or stop at any time without giving any reason. As you do not write your name on the questionnaire, you give me the information anonymously. Once you have sent the questionnaire back to me, you cannot recall your consent.I will not be able to trace your information. Therefore, you will also not be identified as a participant in any publication that comes from this study.
Note: The implication of completing the questionnaire is that informed consent has been obtained from you. Thus any information derived from your form (which will be totally anonymous) may be used for e.g. publication, by the researcher.

I sincerely appreciate your help.

Yours truly,

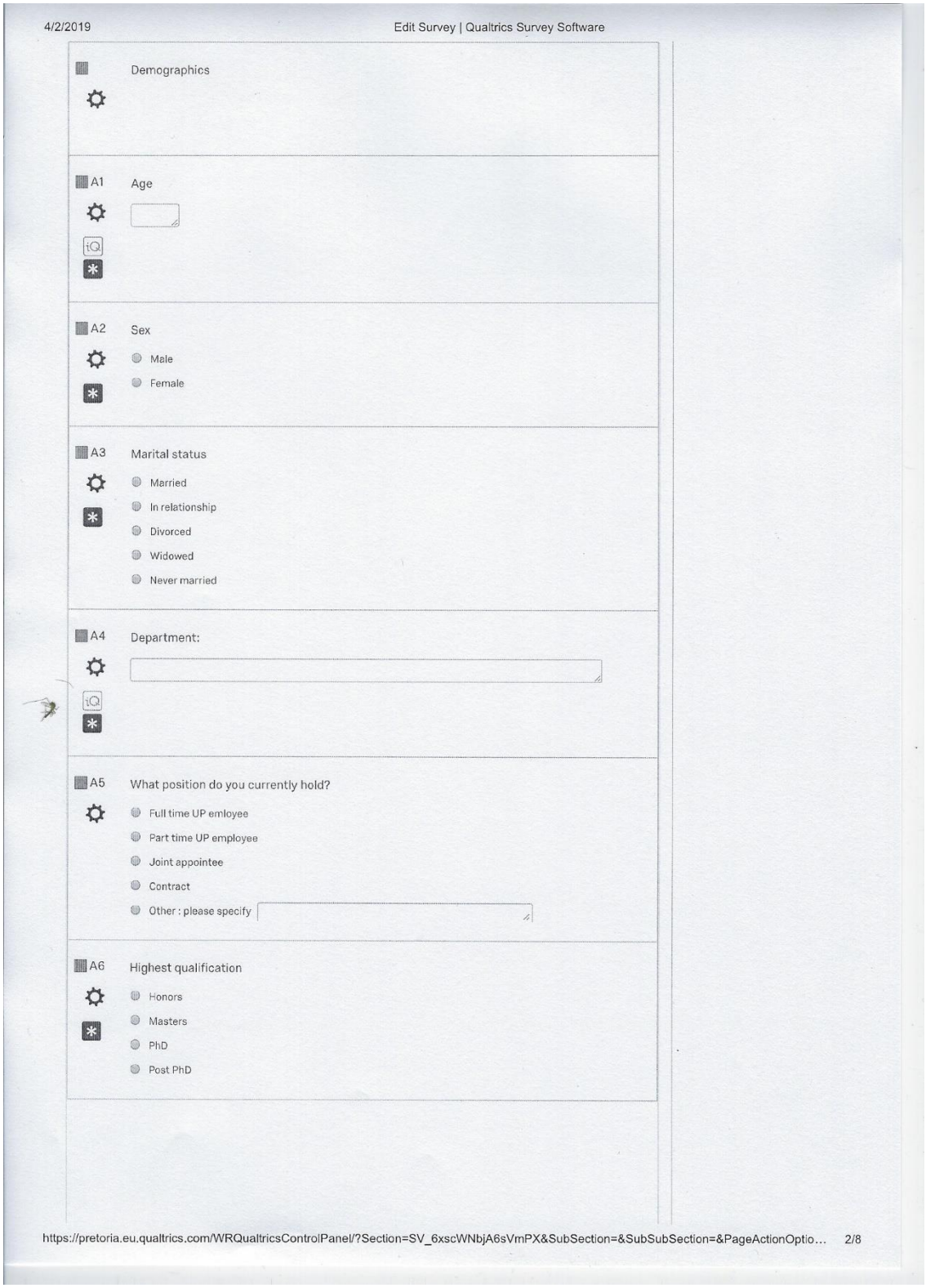
Ursula Kruger
Department of Radiography
University of Pretoria

I agree to participate in this survey

- Yes
- No

Condition: No Is Selected. Skip To: End of Survey.

https://pretoria.eu.qualtrics.com/WRQualtricsControlPanel/?Section=SV_6xscWNbjA6sVmPX&SubSection=&SubSubSection=&PageActionOptio… 1/8



Demographics

A1 Age

A2 Sex

- Male
- Female

A3 Marital status

- Married
- In relationship
- Divorced
- Widowed
- Never married

A4 Department:

A5 What position do you currently hold?

- Full time UP emloyee
- Part time UP employee
- Joint appointee
- Contract
- Other : please specify

A6 Highest qualification

- Honors
- Masters
- PhD
- Post PhD

A7 Years experience: Clinical

A8 Years experience : Academic

A9 Member to medical aid:
- Yes
- No

A10 Do you attend wellness sessions hosted by your medical aid?
- Yes
- No

A11 Do you attend wellness sessions hosted by the University of Pretoria?
- Yes
- No

A12 Family history of breast cancer?
- Yes
- No

Display This Question:
If Family history of breast cancer? Yes Is Selected

Please specify relation:

A13 Family history of any other cancer?
- Yes
- No

Display This Question:
If Family history of any other cancer? Yes Is Selected

Please specify what type:

SECTION B:

Please tick the appropriate answer: Multiple options can be selected

B1 Please indicate which of the following screening tests available for breast health are you practising:

- Breast self-examination
- Clinical breast examination
- Mammography
- Ultrasound
- MRI
- Breast biopsy
- None

B2 Where did you learn to perform breast self-examination?

- Medical practitioner
- Health care worker
- Information sourced online
- Media
- Other

Display This Question:
If Sex Female Is Selected

B3 Please indicate which of the following risk factors for breast cancer are applicable to **YOU:**

- No children
- First child after age 30
- Never breastfed
- Use of birth control pills
- Early menage - younger than 12 years old
- Aunt or mother with breast cancer
- Having another type of cancer yourself
- Late menopause- older than 55 years
- Hormone replacement therapy
- BMI above 25
- Smoking
- Alcohol usage more than 2 units per day

Display This Question:
If Sex Male Is Selected

Q37

Please indicate which of the following risk factors for breast cancer are applicable to **YOU:**

- Aunt or mother with breast cancer
- Having another type of cancer yourself
- BMI above 25
- Smoking
- Alcohol usage more than 3 units per day

B4

Please indicate which of the risk factors applicable to males and females were you **NOT** aware of:

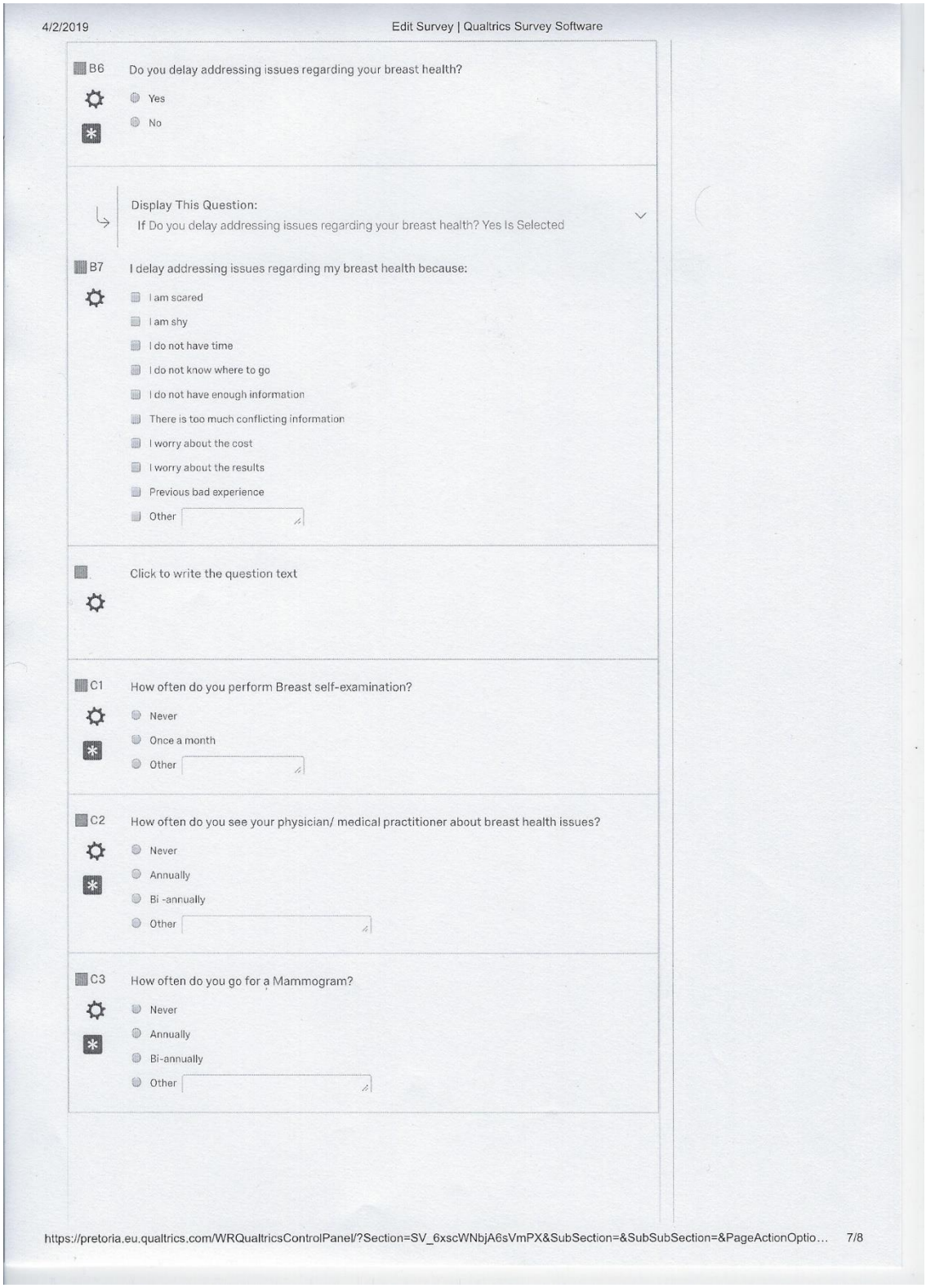
- No children
- First child after age 30
- Never breastfed
- Use of birth control pills
- Early menage - younger than 12 years old
- Aunt or mother with breast cancer
- Having another type of cancer yourself
- Late menopause - older than 55 years
- Hormone replacement therapy
- BMI above 25
- Smoking
- Alcohol usage ; women > 2 units per day, men > 3 units per day
- Not applicable: Am aware of all the above risk factors

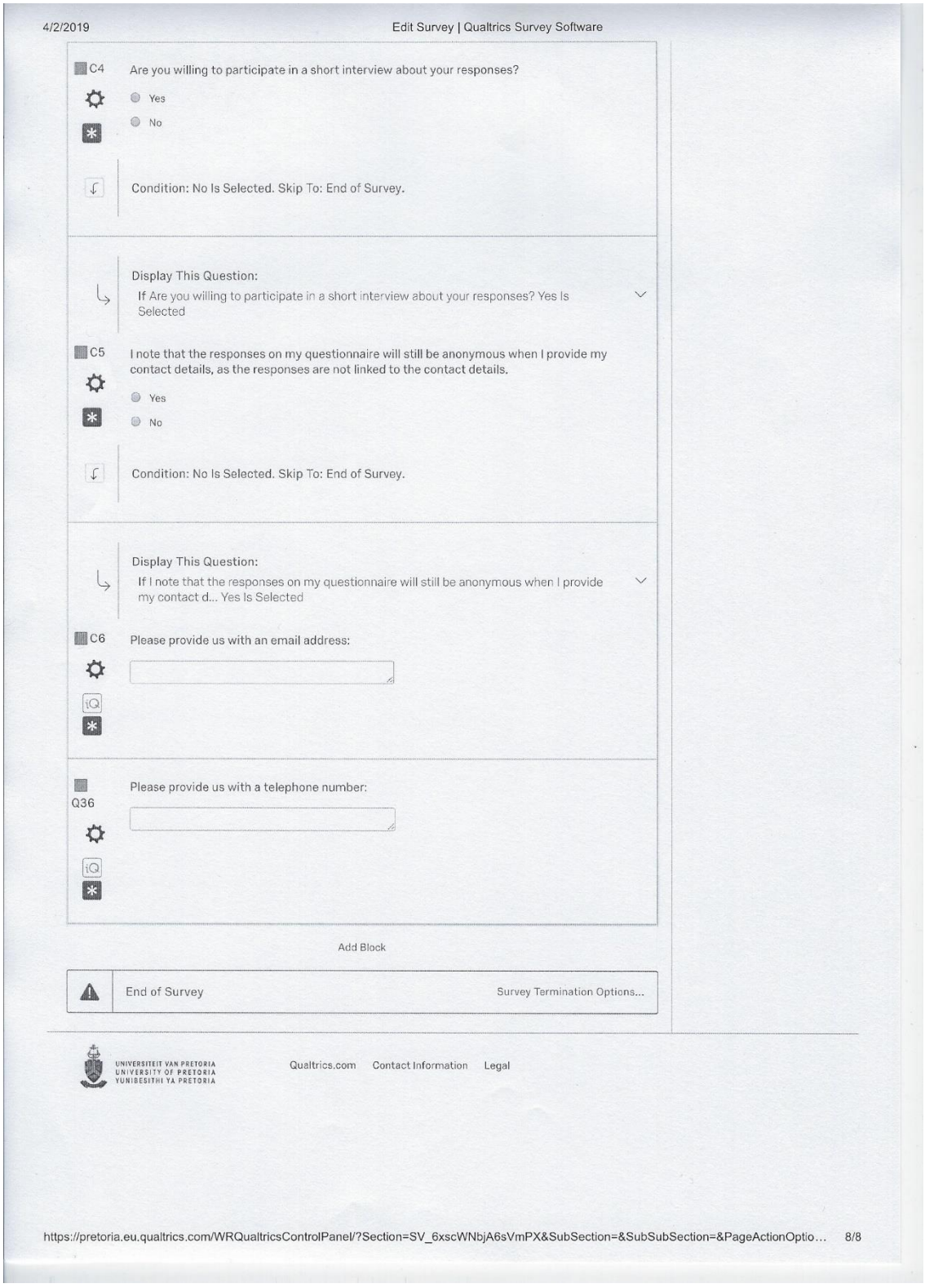
B5 Please indicate to which degree you agree or disagree with the following statements:

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Breast health is important to me					
It is important to perform Breast self-examination					
It is important to go for a screening Mammogram					
It is important to me to discuss breast health with friends and /or family members					
It is important to me to discuss breast health with students					
I only seek professional help once I have detected a breast problem					
I know the correct way to perform Breast self-examination					

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I know the difference between Clinical breast examination and Breast self-examination					
My cultural beliefs influence my attitude towards breast health					
My cultural beliefs prevent me from practising breast health					
My religious beliefs influence my attitude towards breast health					
My religious beliefs prevent me from practising breast health					
I am aware of the breast health services offered by my Medical aid					
I am aware of the UP Wellness Programme					

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Early detection of breast cancer can improve the treatment outcomes					
Treatment for breast cancer is beneficial					
I often talk to students about breast health					
I often talk to colleagues about breast health					
I often talk to friends or family members about breast health					





ANNEXURE B

-Informed consent document for interviews-

PARTICIPANT'S INFORMATION & INFORMED CONSENT DOCUMENT

STUDY TITLE: Healthcare educators' awareness, attitudes and practices of breast health: a mixed methods study.

Principal Investigator: Ursula Kruger

Institution: University of Pretoria

DAY TIME AND AFTER HOURS TELEPHONE NUMBER(S):

Daytime numbers: (012) 356 3268

After-hours: 082 859 1286

DATE AND TIME OF FIRST INFORMED CONSENT DISCUSSION:

			:	
dD	**mM**	**yyYY**	**Time**	

Dear Participant

Dear Mr. /Ms. / Mrs. / Dr. /Prof. ..... date of consent …...../…...../…...

1)INTRODUCTION

You are invited to volunteer for a research study. This information leaflet is to help you to decide if you would like to participate. Before you agree to take part in this study you should fully understand what is involved. If you have any questions, which are not fully explained in this leaflet, do not hesitate to ask the investigator.

2) THE NATURE AND PURPOSE OF THIS STUDY

You are invited to take part in a research study. The aim of this study is to explain the practices awareness and attitude related to Breast Health amongst Health Care Educators in the Faculty of Health Sciences. With the use of interviews, I wish to learn more about the practices, attitudes and awareness related to Breast Health.

3) EXPLANATION OF PROCEDURES TO BE FOLLOWED

This study involves answering some questions during an interview with regard to your breast health practices as well as your attitude and awareness related to breast health.

4) RISK AND DISCOMFORT INVOLVED.

There are no risks involved.

5) POSSIBLE BENEFITS OF THIS STUDY.

You are not directly benefitted. The study findings may benefit you in the future if recommendations can be made and other improvements implemented.

6) I understand that if I do not want to participate in this study, I will not be treated unfairly or discriminated against.

7) I may at any time withdraw from this study.

8) HAS THE STUDY RECEIVED ETHICAL APPROVAL?

This Protocol was submitted to the Faculty of Health Sciences Research Ethics Committee, University of Pretoria, telephone numbers 012 356 3084 / 012 356 3085 and written approval has been granted by that committee. The study has been structured in accordance with the Declaration of Helsinki (last update: October 2013), which deals with the recommendations guiding doctors in biomedical research

involving human/subjects. A copy of the Declaration may be obtained from the investigator should you wish to review it.

9) INFORMATION If I have any questions concerning this study, I should contact:

Ms. U. Kruger Tel no: 012 356 3268 or Cell no: 082 859 1286

10) CONFIDENTIALITY

All records obtained whilst in this study will be regarded as confidential. Results will be published or presented in such a fashion that participants remain unidentifiable.

11) CONSENT TO PARTICIPATE IN THIS STUDY.

I have read or had read to me in a language that I understand the above information before signing this consent form. The content and meaning of this information have been explained to me. I have been given opportunity to ask questions and am satisfied that they have been answered satisfactorily. I understand that if I do not participate it will not alter my management in any way. I am aware that the interviews will be audio recorded. I hereby volunteer to take part in this study.

I have received a signed copy of this informed consent agreement.

....

Participant name Date

....

Participant signature Date

.....	.....
Investigator's name	Date
.....	.....
Investigator's signature	Date
.....	.....
Witness name and signature	Date

ANNEXURE C

-Interview guide-

Interview questions

Participant number	
Date	
Time	
Department	
Place of interview	

Reminders for researcher before starting the interview:

- Explain information leaflet to the participant.
- Get consent from participant.
- Check Audio equipment.
- Switch recorder on.
- Remember to make field notes during the interview.

INTERVIEW QUESTIONS

Primary Questions	***Probing Questions***
1. What is your opinion of breast health?	Is Breast Health important to you? If no, why?
2. What is your opinion on screening tests for breast health?	Do you practice BSE? If no, why? Have you had a Mammogram? If no, why? How often do you think the screening tests should be done?
3. What is your opinion on early detection of breast cancer?	Is it important? Why?
4. Please tell me where or how you obtain information on breast health.	Do you actively seek information on breast health? From where?

5. Do you talk to friends, family members, colleagues and students about breast health?	With whom do you talk about breast health issues?
6. Tell me about any breast health support services you have access to.	

Reminders for researcher after the interview:

- Thank participant.
- Switch off Audio Recorder.
- Note length of interview.

Annexure D

-Transcript example-

28 November 2018 @ 14h00

Duration: 16 minutes
Participant 7

Question: I just want to know, what is your opinion on breast health? What do you think, is it important? Is it important to you?

Participant 7: I think in general it is important. Especially to pick up any breast cancers, pick it up early even, but to me I must say, I can't say it is important to me because I have not done it.

Question: You have done nothing yet?

Participant 7: I have done nothing yet. I know my mom does a mammogram. I have not done any checks. Even on a normal day I am not doing anything. I just don't remember having checked myself. In general yes, but I think for me the breast cancer, it is always out there.

Question: It is not meant for you, you think it is not inside your inner circle?

Participant 7: No because I have people who have had issues with cancer, but is always outside the door and never really inside the home.

Question: You don't have a family history, nobody in your family, friends, nobody?

Participant 7: No, not breast, but there has been other kinds of cancer. There was a friend, I think it was ovarian, or cervical, I don't quite remember and a distant relative who had colon cancer.

Question: So you don't to bse, breast self examination. You have never done it before?

Participant 7: I have read about it and I have seen pictures on how to do it. When I was still younger, I used to check, because I think when my breasts were still growing, and I would feel that "is this supposed to be like that, or is it supposed to be this high", but growing up I have not been checking.

Question: So you haven't checked really? How would you choose a screening test? Which one would you think you would use as a screening test, like a mammogram, an ultrasound? BSE is part of it as well, so that is also one of your screening tests.

Participant 7: I am not sure, because usually the self check is one of the simplest, more cost effective, but I am still not doing. Even the ultrasound I mean, I honestly think it would be evasive having somebody else do the procedure making sure that they are checking, because I have heard that with mammograms they have to squeeze the breasts, so I cannot say any other forms would be better, because the most simplest one I don't follow.

Question: So does it scare you to some extent, the invasiveness, the people that need to come close to you to check, like even if you have to go to a clinician has to either check would be your clinician self examination, or the clinician checks it, clinician breast exam, or if you go to your gynaecologist or your doctor.

Participant 7: I do have a general problem with people in my space, that is something I have noticed, so I don't go for checkups unless I really, really have to, and if it is somebody else, if it is a gynaecologist and I know I have to go for other exams, I try to block my mind that this needs to be done, but I find it very difficult for somebody else to be touching my body for examinations.

Question: Would that be one of the reasons why you would delay issues regarding your breast health, because of the closeness of somebody else?

Participant 7: I think if it wouldn't be because of somebody else, I could easily check it myself, so it is not because of somebody else who would need to check, but I think perhaps with that fear of the unknown, sometimes it is usually ignorance is bliss in the sense that as soon as I go digging, then I find something wrong, I wouldn't know what to do next, so I would leave it, if there is nothing wrong then I check that a year passes, then I would hear about it again, for example between now and filling out that questionnaire, it clicked that oh yes breast health, did I check between then and now. No.

Question: It made you aware that it didn't really trigger an action of saying let me do it.

Participant 7: No.

Question: Where do you obtain your breast health information, is it via the internet, from google, from articles?

Participant 7: The internet, because I do not initiate the search. I would not once sit and think okay let me find out breast awareness or breast health, so it will be as if I am busy with something else an e-mail will pops up that maybe there is an awareness day, the medical aid is bringing people and they are going to be looking, then I read through it and that is it. It will not be a thing I research.

Question: Do you find that the medical aid the breast health support services they offer is any use to you or useful? Did you find info?

Participant 7: They send e-mails about wellness days, but I have not also looked at my medical aid to see how I am covered in terms of awareness, benefits which doctor I need to be going to, I have not. So perhaps my medical aid does do more, I don't know.

Question: What is your opinion on early detection of breast cancer? Do you think it has a space, is it important?

Participant 7: In terms of the importance, yes, knowing the severity of the cancer of course being caught early is best and it is important to detect is much earlier, that is just in my head.

Question: Do you think it would better the outcome of the patient if it is found earlier?
Participant 7: Early detection, how will that effect the patient exactly?

Question: Like the treatment of the patient, or the outcome, if in case they found it early.
Participant 7: I think if there is like a family history, it might encouraged the patient to check frequently and then will lead to early detection, and motivate that now that we have caught it early, they can remove whatever that was found, and if need to go through chemotherapy or radiation then you are on the roll already, unlike they found it at an advanced stage and then that's it. So if it helps being on Momentum health, this is what is happening in the family, I need to keep checking every 6 months or every 12 months, then if something found, this is a continuous flow unlike when there has been no family history then stage 3. So I think being on the pre knowledge would help.

Question: So the knowledge is important that you know and then maybe also other risk factors, not only like my mother and aunt has it but I something I should be aware of, because otherwise you think that you wouldn't really do early detection because you wouldn't know to go for it. It is a very valid point.
Participant 7: Yes.

Question: Do you ever talk to friends, colleagues or family members about breast health? Is there never really opportunity for this?
Participant 7: I have only spoken to my mom about it, that is when I found that she goes for a mammogram, then every year in general I talk about gynaecological visits where I needed to find a gynaecologist. I used to go to my mom's gynaecologist but then I moved to now I have to find my own, so I asked her what to look out for i.t.o help, but it has never been like when you sit and say "oh ladies what do you guys think about", I mean we can complement each other about our cleavage, that is a really lovely top my goodness it is a real plunging line, but that is where it will end.

Question: You don't think that there is ever a chance to talk to students about it?
Participant 7: No.

Question: There is no real space in your discipline or anywhere else where you can say let's talk about of find an awareness campaign or something to say what they should be doing?

Participant 7: No, even with the students with the subjects I am teaching, the only time that the word breast comes up is if they need to be doing a technique and I have to ask consent that if my hand brush against your breast while I am doing this, do I have consent to touch you and that is it. There is no other space that gives the opportunity to speak about breast health.

Question: We are trying to think where we can find a space for students and even us reaching patients, reaching more people saying, somewhere amongst your discipline saying okay well if we are talking about consent, maybe we should ask is there any problems or do you do other tests.

Participant 7: I think that is the thing, we don't think about those things.

Question: I am trying to just figure out in discipline, is there space in which of our disciplines we need to be doing it. Is it just the people doing mammograms, just the nursing people, or would you reach more people if we were able to incorporate it into other disciplines.

Participant 7: Definitely, if we had it in particularly the subjects I am teaching, might not have that explicit space, but definitely in the other sections that women's health, where they have been taught antenatal classes. I am not sure that it is included.

Question: There is now a subject in women's health. It is easier for me to figure out if there is a space, you know if I want to recommend something where will I try and find it.

Participant 7: In women's health definitely.

Question: It might just pop up there somehow even if you just give a note.

Participant 7: Definitely.

Question: When you did my questionnaire, did you find anything of interest or that you find has triggered your interest.

Participant 7: Yes, it has made me aware of what I said earlier on, ever after filling it out I did not do a self check, I did not read up on anything further, nothing like that, so I think filling the questionnaire and then I said yes, however there is closing the questionnaire there is would you be interested in it further, yes.

Question: So that was easy enough?

Participant 7: Yes, it was perhaps had I more exposure in my life, now to information at my information at my fingertips, I just need to search, but because in my family there is hypertension, there is cholesterol and diabetes. Those are in my face every single

time, so I do regulations on my blood pressure to make sure that my cholesterol levels because I am such a high risk, because from both maternal and paternal, even amputations have been in the family so because it is the thing is my whole closed knit home environment and perhaps that is why I have been so proactive about breast health because it is a bit further out. There is that feeling that had it been vice versa I might not have been checking my blood pressure regularly or my sugar levels but checking my breast health and make sure I just do my checks. I have read that people who are doing elective mastectomy, it is because there is a family history of breast cancer and then they would opt to remove their breast to reduce their chances. So sometimes when it is closer to home, it propels us to actually do more.

Question: That is a very valid point, you are less invested in breast health because you have a family history and less factors for breast cancer for instance, so it is then to say if it hits my closer home, you know if it is something I deal with daily I am more aware of it, I am more scared of it actually.

Participant 7: Yes it does, it plays with the mind actually, perhaps normally I know about it but I just don't do it, but then I think okay my grandparents have type 2 diabetes, they are doing this, they are on medication for this, chronic medication and then I will be checking, I have to check all these things. I think that is the real reason.

Question: So that plays an important role actually.
Participant 7: Yes.

ANNEXURE E

-Letters of ethical clearance-

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Health Sciences

The Research Ethics Committee, Faculty Health Sciences, University of Pretoria complies with ICH-GCP guidelines and has US Federal wide Assurance.
- FWA 00002567, Approved dd 22 May 2002 and Expires 03/20/2022.
- IRB 0000 2235 IORG0001762 Approved dd 22/04/2014 and Expires 03/14/2020.

8/11/2018

Approval Certificate
Amendment
(to be read in conjunction with the main approval certificate)

Ethics Reference No: 95/2018

Title: Healthcare educators' awareness, attitudes and practices of breast health: a mixed methods study.

Dear Ms Ursula Kruger

The **Amendment** as described in your documents specified in your cover letter dated 5/09/2018 received on 5/09/2018 was approved by the Faculty of Health Sciences Research Ethics Committee on its quorate meeting of 7/11/2018.

Please note the following about your ethics approval:
- Please remember to use your protocol number (**95/2018**) on any documents or correspondence with the Research Ethics Committee regarding your research.
- Please note that the Research Ethics Committee may ask further questions, seek additional information, require further modification, or monitor the conduct of your research.

Ethics approval is subject to the following:
- The ethics approval is conditional on the research being conducted as stipulated by the details of all documents submitted to the Committee. In the event that a further need arises to change who the investigators are, the methods or any other aspect, such changes must be submitted as an Amendment for approval by the Committee.

We wish you the best with your research.

Yours sincerely

Dr R Sommers; MBChB; MMed (Int); MPharMed,PhD
Deputy Chairperson of the Faculty of Health Sciences Research Ethics Committee, University of Pretoria

The Faculty of Health Sciences Research Ethics Committee complies with the SA National Act 61 of 2003 as it pertains to health research and the United States Code of Federal Regulations Title 45 and 46. This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki, the South African Medical Research Council Guidelines as well as the Guidelines for Ethical Research: Principles Structures and Processes, Second Edition 2016 (Department of Health).

Research Ethics Committee
Room 4-60, Level 4, Tswelopele Building
University of Pretoria, Private Bag X323
Arcadia 0007, South Africa
Tel +27 (0)12 356 3084
Email deepeka.behari@up.ac.za
www.up.ac.za

Fakulteit Gesondheidswetenskappe
Lefapha la Disaense tša Maphelo

The Research Ethics Committee, Faculty Health Sciences, University of Pretoria complies with ICH-GCP guidelines and has US Federal wide Assurance.
- FWA 00002567, Approved dd 22 May 2002 and Expires 03/20/2022.
- IRB 0000 2235 IORG0001762 Approved dd 22/04/2014 and Expires 03/14/2020.

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Health Sciences Research Ethics Committee

16/05/2018

Approval Certificate
New Application

Ethics Reference No: 95/2018

Title: Practises, awareness and attitudes related to breast health amongst healthcare educators: A mixed method study.

Dear Ms Ursula Kruger

The **New Application** as supported by documents specified in your cover letter dated 2/05/2018 for your research received on the 4/05/2018, was approved by the Faculty of Health Sciences Research Ethics Committee on its quorate meeting of 16/05/2018.

Please note the following about your ethics approval:
- Ethics Approval is valid for 2 years

Please remember to use your protocol number (**95/2018**) on any documents or correspondence with the Research Ethics Committee regarding your research.
- Please note that the Research Ethics Committee may ask further questions, seek additional information, require further modification, or monitor the conduct of your research.

Ethics approval is subject to the following:
- The ethics approval is conditional on the receipt of **6 monthly written Progress Reports**, and
- The ethics approval is conditional on the research being conducted as stipulated by the details of all documents submitted to the Committee. In the event that a further need arises to change who the investigators are, the methods or any other aspect, such changes must be submitted as an Amendment for approval by the Committee.

We wish you the best with your research.

Yours sincerely

Dr R Sommers; MBChB; MMed (Int); MPharMed,PhD
Deputy Chairperson of the Faculty of Health Sciences Research Ethics Committee, University of Pretoria

The Faculty of Health Sciences Research Ethics Committee complies with the SA National Act 61 of 2003 as it pertains to health research and the United States Code of Federal Regulations Title 45 and 46. This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki, the South African Medical Research Council Guidelines as well as the Guidelines for Ethical Research: Principles Structures and Processes, Second Edition 2015 (Department of Health).

☎ 012 319 2409 Carika.Botha@up.ac.za / fhsethics@up.ac.za http://www.up.ac.za/healthethics
✉ Private Bag X323, Arcadia, 0007 - Tswelopele Building, Level 4, Room 60 / 61, 31 Bophelo Road, Gezina, Pretoria

ANNEXURE F

-Permission letters-

Permission to do Research at the Faculty of Health Sciences, University of Pretoria

To: The Dean of the Faculty of Health Sciences
From: The Investigator: U. Kruger

Re: Permission to do the following research at the Faculty of Health Sciences

I am a Master student working in the Department of Radiography at the University of Pretoria. I am requesting permission on behalf of my supervisor (Ms PL Bresser) and I, to conduct a study on the premises of the Faculty of Health Sciences at the University of Pretoria. This involves access to facilities for interviewing, access to the members of your staff for interviews and completion of an online questionnaire.

The title of the study is: Exploring the practices, awareness and attitudes of breast health among Health Care Educators: A mixed methods study

We intend to publish the findings of the study in a professional journal and/ or at professional meeting like symposia, congresses, or other meetings of such a nature.

We undertake not to proceed with the study until we have received approval from the Faculty of Health Sciences Research Ethics Committee, University of Pretoria.

Yours sincerely

Signature of the Principle Investigator

Permission to do the research study at the selected Faculty and to access the information as requested is hereby approved.

Dean of the Faculty of Health Sciences: University of Pretoria

Prof Tiaan de Jager

pp.

Signature of the Deputy Dean of Education

OFFICE OF THE DEAN
FACULTY OF HEALTH SCIENCES
Department Official Stamp
2018 -03- 07
UNIVERSITY OF PRETORIA
PRIVATE BAG X323, ARCADIA, 0007

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Health Sciences
Department of Radiography

5 March 2018

To whom it may concern,

I am a postgraduate student, undertaking my Master's degree in the Radiography Department. May I please request that you consider the attached research and sign the permission letter for conducting research in the School / Department as the Head of Department or Chair of School in the Faculty of Health Sciences

The Postgraduate Committee of the School of Health Care Sciences has approved the proposal. The proposal has been submitted to the Ethics Committee of the Faculty of Health Sciences and is awaiting ethical clearance.

Please find attached the permission letter, proposal and Annexure C: the questionnaire which will be distributed online to the Faculty. Additional annexures are available on your request.

Kind Regards

Ursula Kruger

Good day
① This is research including staff as study population
② This is a survey
③ No students in MBChB are involved.
8/3/18

Fakulteit Gesondheidswetenskappe
Departement Radiografie
Lefapha la Disaense tša Maphelo
Kgoro ya Radiokrafi

Permission to do Research in the School of Health Care Sciences, University of Pretoria

To: The Chairperson of School of Health Care Sciences
From: The Investigator: U. Kruger

Re: Permission to do the following research at the School of Health Care Sciences, Faculty of Health Sciences

I am a Master student working in the Department of Radiography at the University of Pretoria. I am requesting permission on behalf of my supervisor (Ms PL Bresser) and I, to conduct a study on the premises of the School of Health Care Sciences at the University of Pretoria. This involves access to facilities for interviewing, access to the members of your staff for interviews and completion of an online questionnaire.

The title of the study is: Exploring the practices, awareness and attitudes of breast health among Health Care Educators: A mixed methods study

We intend to publish the findings of the study in a professional journal and/ or at professional meeting like symposia, congresses, or other meetings of such a nature.

We undertake not to proceed with the study until we have received approval from the Faculty of Health Sciences Research Ethics Committee, University of Pretoria.

Yours sincerely

Signature of the Principle Investigator

Permission to do the research study at the selected Department and to access the information as requested is hereby approved.

Chairperson of School of Health Care Sciences: University of Pretoria

~~Prof~~ Ms R.M KEKANA

pp

Signature of the Chairperson

Department Official Stamp

Permission to do Research at the Faculty of Health Sciences, University of Pretoria

To: The Chairperson of the School of Dentistry
From: The Investigator: U. Kruger

Re: Permission to do the following research at the Faculty of Health Sciences

I am a Master student working in the Department of Radiography at the University of Pretoria. I am requesting permission on behalf of my supervisor (Ms PL Bresser) and I, to conduct a study on the premises of the Faculty of Health Sciences at the University of Pretoria. This involves access to facilities for interviewing, access to the members of your staff for interviews and completion of an online questionnaire.

The title of the study is: Exploring the practices, awareness and attitudes of breast health among Health Care Educators: A mixed methods study

We intend to publish the findings of the study in a professional journal and/ or at professional meeting like symposia, congresses, or other meetings of such a nature.

We undertake not to proceed with the study until we have received approval from the Faculty of Health Sciences Research Ethics Committee, University of Pretoria.

Yours sincerely

Signature of the Principle Investigator

Permission to do the research study at the selected Faculty and to access the information as requested is hereby approved subject to ethics clearance by the Ethics Committee of the Faculty of Health Sciences

The Chairperson of the School of Dentistry

Prof

Signature of the Chairperson of the School of Dentistry

Department Official Stamp

OFFICE OF THE CHAIR OF SCHOOL/ CHIEF EXECUTIVE OFFICER
12 MAR 2018
School of Dentistry - University of Pretoria
ORAL HEALTH CENTRE
PO Box 1266 Pretoria

ANNEXURE G

-Declaration regarding plagiarism-

UNIVERSITY OF PRETORIA

DECLARATION OF ORIGINALITY

I, **Ursula Kruger (UP no 97094324),**

Declare that:

1. I understand what plagiarism is and am aware of the University's policy in this regard.

2. I declare that this Proposal is my own original work. Where other people's work has been used (either from a printed source, Internet or any other source), this has been properly acknowledged and referenced in accordance with departmental requirements.

3. I have not used work previously produced by another student or any other person to hand in as my own.

4. I have not allowed, and will not allow, anyone to copy my work with the intention of passing it off as his or her own work.

SIGNATURE OF STUDENT

Ursula Kruger

ANNEXURE H

-Declaration of Helsinki-

World Medical Association Declaration of Helsinki

Ethical Principles for Medical Research

Involving Human Subjects

World Medical Association

Adopted by the 18th WMA General Assembly, Helsinki, Finland, June 1964, and amended by the:

29th WMA General Assembly, Tokyo, Japan, October 1975

35th WMA General Assembly, Venice, Italy, October 1983

41st WMA General Assembly, Hong Kong, September 1989

48th WMA General Assembly, Somerset West, Republic of South Africa, October 1996

52nd WMA General Assembly, Edinburgh, Scotland, October 2000

53rd WMA General Assembly, Washington, DC, USA, October 2002 (Note of Clarification added)

55th WMA General Assembly, Tokyo, Japan, October 2004 (Note of Clarification added)

59th WMA General Assembly, Seoul, Republic of Korea, October 2008

64th WMA General Assembly, Fortaleza, Brazil, October 2013

Preamble

1. The World Medical Association (WMA) has developed the Declaration of Helsinki as a statement of ethical principles for medical research involving human subjects, including research on identifiable human material and data. The Declaration is intended to be read as a whole and each of its constituent paragraphs should be applied with consideration of all other relevant paragraphs.

2. Consistent with the mandate of the WMA, the Declaration is addressed primarily to physicians. The WMA encourages others who are involved in medical research involving human subjects to adopt these principles.

General Principles

3. The Declaration of Geneva of the WMA binds the physician with the words, “The health of my patient will be my first consideration,” and the International Code of Medical Ethics declares that, “A physician shall act in the patient's best interest when providing medical care.”

4. It is the duty of the physician to promote and safeguard the health, well-being and rights of patients, including those who are involved in medical research. The physician's knowledge and conscience are dedicated to the fulfilment of this duty.

5. Medical progress is based on research that ultimately must include studies involving human subjects.

6. The primary purpose of medical research involving human subjects is to understand the causes, development and effects of diseases and improve preventive, diagnostic and therapeutic interventions (methods, procedures and treatments). Even the best proven interventions must be evaluated continually through research for their safety, effectiveness, efficiency, accessibility, and quality.

7. Medical research is subject to ethical standards that promote and ensure respect for all human subjects and protect their health and rights.

8. While the primary purpose of medical research is to generate new knowledge, this goal can never take precedence over the rights and interests of individual research subjects.

9. It is the duty of physicians who are involved in medical research to protect the life, health, dignity, integrity, right to self-determination, privacy, and confidentiality of personal information of research subjects. The responsibility for the protection of research subjects must always rest with

the physician or other health care professionals and never with the research subjects, even though they have given consent.

10. Physicians must consider the ethical, legal and regulatory norms and standards for research involving human subjects in their own countries as well as applicable international norms and standards. No national or international ethical, legal or regulatory requirement should reduce or eliminate any of the protections for research subjects set forth in this Declaration.

11. Medical research should be conducted in a manner that minimises possible harm to the environment.

12. Medical research involving human subjects must be conducted only by individuals with the appropriate ethics and scientific education, training and qualifications. Research on patients or healthy volunteers requires the supervision of a competent and appropriately qualified physician or other health care professional. Clinical Review & Education
13. Groups that are underrepresented in medical research should be provided appropriate access to participation in research.

14. Physicians who combine medical research with medical care should involve their patients in research only to the extent that this is justified by its potential preventive, diagnostic or therapeutic value and if the physician has good reason to believe that participation in the research study will not adversely affect the health of the patients who serve as research subjects.
15. Appropriate compensation and treatment for subjects who are harmed as a result of participating in research must be ensured.

Risks, Burdens and Benefits

16. In medical practice and in medical research, most interventions involve risks and burdens. Medical research involving human subjects may only

be conducted if the importance of the objective outweighs the risks and burdens to the research subjects.

17. All medical research involving human subjects must be preceded by careful assessment of predictable risks and burdens to the individuals and groups involved in the research in comparison with foreseeable benefits to them and to other individuals or groups affected by the condition under investigation. Measures to minimise the risks must be implemented. The risks must be continuously monitored, assessed, and documented by the researcher.

18. Physicians may not be involved in a research study involving human subjects unless they are confident that the risks have been adequately assessed and can be satisfactorily managed. When the risks are found to outweigh the potential benefits or when there is conclusive proof of definitive outcomes, physicians must assess whether to continue, modify or immediately stop the study.

Vulnerable Groups and Individuals

19. Some groups and individuals are particularly vulnerable and may have an increased likelihood of being wronged or of incurring additional harm. All vulnerable groups and individuals should receive specifically considered protection.

20. Medical research with a vulnerable group is only justified if the research is responsive to the health needs or priorities of this group and the research cannot be carried out in a non-vulnerable group. In addition, this group should stand to benefit from the knowledge, practices or interventions that result.

Scientific Requirements and Research Protocols

21. Medical research involving human subjects must conform to generally accepted scientific principles, be based on a thorough knowledge of the scientific literature, other relevant sources of information, and adequate laboratory and, as appropriate, animal experimentation. The welfare of animals used for research must be respected.

22. The design and performance of each research study involving human subjects must be clearly described and justified in a research protocol. The protocol should contain a statement of the ethical considerations involved and should indicate how the principles in this Declaration have been addressed. The protocol should include information regarding funding, sponsors, institutional affiliations, potential conflicts of interest, incentives for subjects and information regarding provisions for treating and/or compensating subjects who are harmed as a consequence of participation in the research study. In clinical trials, the protocol must also describe appropriate arrangements for post-trial provisions.

Research Ethics Committees

23. Their search protocol must be submitted for consideration, comment, guidance, and approval to the concerned research ethics committee before the study begins. This committee must be transparent in its functioning, must be independent of the researcher, the sponsor and any other undue influence and must be duly qualified. It must take into consideration the laws and regulations of the country or countries in which the research is to be performed as well as applicable international norms and standards but these must not be allowed to reduce or eliminate any of the protections for research subjects set forth in this Declaration. The committee must have the right to monitor ongoing studies. The researcher must provide monitoring information to the committee, especially information about any serious adverse events. No amendment to the protocol may be made without consideration and approval by the committee. After the end of the study, the researchers must submit a final

report to the committee containing a summary of the study's findings and conclusions.

Privacy and Confidentiality

24. Every precaution must be taken to protect the privacy of research subjects and the confidentiality of their personal information.

Informed Consent

25. Participation by individuals capable of giving informed consent as subjects in medical research must be voluntary. Although it may be appropriate to consult family members or community leaders, no individual capable of giving informed consent may be enrolled in a research study unless he or she freely agrees.

26. In medical research involving human subjects capable of giving informed consent, each potential subject must be adequately informed of the aims, methods, sources of funding, any possible conflicts of interest, institutional affiliations of the researcher, the anticipated benefits and potential risks of the study and the discomfort it may entail, post-study provisions and any other relevant aspects of the study. The potential subject must be informed of the right to refuse to participate in the study or to withdraw consent to participate at any time without reprisal. Special attention should be given to the specific information needs of individual potential subjects as well as to the methods used to deliver the information. After ensuring that the potential subject has understood the information, the physician or another appropriately qualified individual must then seek the potential subject's freely-given informed consent, preferably in writing. If the consent cannot be expressed in writing, the non-written consent must be formally documented and witnessed. All medical research subjects should be given the option of being informed about the general outcome and results of the study.

27. When seeking informed consent for participation in a research study the physician must be particularly cautious if the potential subject is in a dependent relationship with the physician or may consent under duress. In such situations the informed consent must be sought by an appropriately qualified individual who is completely independent of this relationship.

28. For a potential research subject who is incapable of giving informed consent, the physician must seek informed consent from the legally authorised representative. These individuals must not be included in a research study that has no likelihood of benefit for them unless it is intended to promote the health of the group represented by the potential subject, the research cannot instead be performed with persons capable of providing informed consent, and the research entails only minimal risk and minimal burden.

29. When a potential research subject who is deemed incapable of giving informed consent is able to give assent to decisions about participation in research, the physician must seek that assent in addition to the consent of the legally authorised representative. The potential subject's dissent should be respected.

30. Research involving subjects who are physically or mentally incapable of giving consent, for example, unconscious patients, may be done only if the physical or mental condition that prevents giving informed consent is a necessary characteristic of the research group. In such circumstances the physician must seek informed consent from the legally authorised representative. If no such representative is available and if the research cannot be delayed, the study may proceed without informed consent provided that the specific reasons for involving subjects with a condition that renders them unable to give informed consent have been stated in the research protocol and the study has been approved by a research ethics

committee. Consent to remain in the research must be obtained as soon as possible from the subject or a legally authorised representative.

31. The physician must fully inform the patient which aspects of their care are related to the research. The refusal of a patient to participate in a study or the patient's decision to withdraw from the study must never adversely affect the patient-physician relationship.

32. For medical research using identifiable human material or data, such as research on material or data contained in biobanks or similar repositories, physicians must seek informed consent for its collection, storage and/or reuse. There may be exceptional situations where consent would be impossible or impracticable to obtain for such research. In such situations the research may be done only after consideration and approval of a research ethics committee.

Use of Placebo

33. The benefits, risks, burdens and effectiveness of a new intervention must be tested against those of the best proven intervention(s), except in the following circumstances: Where no proven intervention exists, the use of placebo, or no intervention, is acceptable; or Where for compelling and scientifically sound methodological reasons the use of any intervention less effective than the best proven one, the use of placebo, or no intervention is necessary to determine the efficacy or safety of an intervention and the patients who receive any intervention less effective than the best proven one, placebo, or no intervention will not be subject to additional risks of serious or irreversible harm as a result of not receiving the best proven intervention. Extreme care must be taken to avoid abuse of this option.

Post-Trial Provisions

34. In advance of a clinical trial, sponsors, researchers and host country governments should make provisions for post-trial access for all participants who still need an intervention identified as beneficial in the trial. This information must also be disclosed to participants during the informed consent process.

Research Registration and Publication and Dissemination of Results

35. Every research study involving human subjects must be registered in a publicly accessible database before recruitment of the first subject.

36. Researchers, authors, sponsors, editors and publishers all have ethical obligations with regard to the publication and dissemination of the results of research. Researchers have a duty to make publicly available the results of their research on human subjects and are accountable for the completeness and accuracy of their reports. All parties should adhere to accepted guidelines for ethical reporting. Negative and inconclusive as well as positive results must be published or otherwise made publicly available. Sources of funding, institutional affiliations and conflicts of interest must be declared in the publication. Reports of research not in accordance with the principles of this Declaration should not be accepted for publication.

Unproven Interventions in Clinical Practice

37. In the treatment of an individual patient, where proven interventions do not exist or other known interventions have been ineffective, the physician, after seeking expert advice, with informed consent from the patient or a legally authorised representative, may use an unproven intervention if in the physician's judgement it offers hope of saving life, re-establishing health or alleviating suffering. This intervention should subsequently be made the object of research, designed to evaluate its safety and efficacy. In all cases, new information must be recorded and, where appropriate, made publicly available.

ANNEXURE I

-Declaration of storage of data-

Principal Investigator's Declaration for the storage of research Data and/or documents

I, the Principal Investigator(s), Ursula Kruger of the following trial/study titled: **Practises, awareness and attitudes related to Breast Health amongst Health Care Educators: A mixed methods study.**

I will be storing all the research data and/or documents referring to the above mentioned trial/study at the following non-residential address:

Faculty of Health Sciences
Room 4-29, Level 4, HW Snyman Building
University of Pretoria, Bophelo road, Gezina

I understand that the storage for the abovementioned data and/or documents must be maintained for a minimum of 15 years from the end of this trial/study.

START DATE OF TRIAL/ STUDY: 01/04/2018 END DATE OF TRIAL/STUDY: 31/12/2019

SPECIFIC PERIOD OF DATA STORAGE AMOUNTING TO NO LESS THAN 15 YEARS: 31/12/2019 until 31/12/2034

Name: Ursula Kruger

Signature **15 March 2018** **Date**

ANNEXURE J

-Letter of clearance from the Biostatistician-

1 March 2018

LETTER OF STATISTICAL SUPPORT

This letter confirms that **U. Kruger** from the **Department of Radiography, Faculty of Health Sciences of the University of Pretoria** discussed her project: **"Exploring the practices, awareness and attitudes of Breast Health amongst Health Care Educators: A mixed methods study."** with me. I confirm that I will assist with the statistical analysis of the study data.

Data analysis

The descriptive statistics mean, median, standard deviation and inter-quartile range will be used to describe the continuous variables such as age. Frequencies and proportions will be used to describe the questions from the questionnaire, including demographics and questions relating to attitudes and awareness of breast health. The Fisher's exact test will be used to test for association between demographic variables and awareness and attitudes of breast health of Health Care Educators. Theme scores for practice, awareness and attitude will be calculated using the mean/sum of the relevant questionnaire items. Pearson's correlation will be used to determine the correlations between themes. The t-test or ANOVA will be used to check for differences in means of theme scores between demographic groups. Tests will be evaluated at 5% level of significance. All analysis will be done using STATA 14.

Sample size

The researcher is encouraged to obtain a minimum sample size of 350 based on a proportion of 35% for good awareness, with a margin of error of 5%.

Name: C Jansé van Rensburg
Biostatistics Unit
MRC Pretoria
012 339 8529
Charl.JansevanRensburg@mrc.ac.za

MEDICAL RESEARCH COUNCIL
Biostatistics Unit
Private Bag X385
Pretoria
0001
Tel: 012 339 8523 / Fax: 012 339 8582

ANNEXURE K

-Transcript example, example of codes emerging to themes and table illustrating qualitative coding-

Transcript Example

28 November 2018 @ 14h00

Participant 7

Question: I just want to know, what is your opinion on breast health? What do you think, is it important? Is it important to you?

Participant 7: I think in general it is important. Especially to pick up any breast cancers, pick it up early even, but to me I must say, I can't say it is important to me because I have not done it.

Question: You have done nothing yet?

Participant 7: I have done nothing yet. I know my mom does a mammogram. I have not done any checks. Even on a normal day I am not doing anything. I just don't remember having checked myself. In general yes, but I think for me the breast cancer, it is always out there.

Question: It is not meant for you, you think it is not inside your inner circle?

Participant 7: No because I have people who have had issues with cancer, but is always outside the door and never really inside the home.

Question: You don't have a family history, nobody in your family, friends, nobody?

Participant 7: No, not breast, but there has been other kinds of cancer. There was a friend, I think it was ovarian, or cervical, I don't quite remember and a distant relative who had colon cancer.

Question: So you don't to bse, breast self examination. You have never done it before?

Participant 7: I have read about it and I have seen pictures on how to do it. When I was still younger, I used to check, because I think when my breasts were still growing, and I would feel that "is this supposed to be like that, or is it supposed to be this high", but growing up I have not been checking.

Question: So you haven't checked really? How would you choose a screening test? Which one would you think you would use as a screening test, like a mammogram, an ultrasound? BSE is part of it as well, so that is also one of your screening tests.

Participant 7: I am not sure, because usually the self check is one of the simplest, more cost effective, but I am still not doing. Even the ultrasound I mean, I honestly think it would be evasive having somebody else do the procedure making sure that they are checking, because I have heard that with mammograms they have to squeeze the breasts so I cannot say any other forms would be better, because the most simplest one I don't follow.

Question: So does it scare you to some extent, the invasiveness, the people that need to come close to you to check, like even if you have to go to a clinician has to either check would be your clinician self examination, or the clinician checks it, clinician breast exam, or if you go to your gynaecologist or your doctor.

Page 1 of 5

Participant 7: I do have a general problem with people in my space, that is something I have noticed, so I don't go for checkups unless I really, really have to, and if it is somebody else, if it is a gynaecologist and I know I have to go for other exams, I try to block my mind that this needs to be done, but I find it very difficult for somebody else to be touching my body for examinations.

Question: Would that be one of the reasons why you would delay issues regarding your breast health, because of the closeness of somebody else?

Participant 7: I think if it wouldn't be because of somebody else, I could easily check it myself, so it is not because of somebody else who would need to check, but I think perhaps with that fear of the unknown, sometimes it is usually ignorance is bliss in the sense that as soon as I go digging, then I find something wrong, I wouldn't know what to do next, so I would leave it, if there is nothing wrong then I check that a year passes, then I would hear about it again, for example between now and filling out that questionnaire, it clicked that oh yes breast health, did I check between then and now. No.

Question: It made you aware that it didn't really trigger an action of saying let me do it.

Participant 7: No.

Question: Where do you obtain your breast health information, is it via the internet, from google, from articles?

Participant 7: The internet, because I do not initiate the search. I would not once sit and think okay let me find out breast awareness or breast health, so it will be as if I am busy with something else an e-mail will pops up that maybe there is an awareness day, the medical aid is bringing people and they are going to be looking, then I read through it and that is it. It will not be a thing I research.

Question: Do you find that the medical aid the breast health support services they offer is any use to you or useful? Did you find info?

Participant 7: They send e-mails about wellness days, but I have not also looked at my medical aid to see how I am covered in terms of awareness, benefits which doctor I need to be going to, I have not. So perhaps my medical aid does do more, I don't know.

Question: What is your opinion on early detection of breast cancer? Do you think it has a space, is it important?

Participant 7: In terms of the importance, yes, knowing the severity of the cancer of course being caught early is best and it is important to detect is much earlier, that is just in my head.

Question: Do you think it would better the outcome of the patient if it is found earlier?

Participant 7: Early detection, how will that effect the patient exactly?

Question: Like the treatment of the patient, or the outcome, if in case they found it early.

page 2 of 5

Participant 7: I think if there is like a family history, it might encouraged the patient to check frequently and then will lead to early detection, and motivate that now that we have caught it early, they can remove whatever that was found, and if need to go through chemotherapy or radiation then you are on the roll already, unlike they found it at an advanced stage and then that's it. So if it helps being on Momentum health, this is what is happening in the family, I need to keep checking every 6 months or every 12 months, then if something found, this is a continuous flow unlike when there has been no family history then stage 3. So I think being on the pre knowledge would help.

Question: So the knowledge is important that you know and then maybe also other risk factors, not only like my mother and aunt has it but I something I should be aware of, because otherwise you think that you wouldn't really do early detection because you wouldn't know to go for it. It is a very valid point.

Participant 7: Yes.

Question: Do you ever talk to friends, colleagues or family members about breast health? Is there never really opportunity for this?

Participant 7: I have only spoken to my mom about it, that is when I found that she goes for a mammogram, then every year in general I talk about gynaecological visits where I needed to find a gynaecologist. I used to go to my mom's gynaecologist but then I moved to now I have to find my own, so I asked her what to look out for i.t.o help, but it has never been like when you sit and say "oh ladies what do you guys think about", I mean we can complement each other about our cleavage, that is a really lovely top my goodness it is a real plunging line, but that is where it will end.

Question: You don't think that there is ever a chance to talk to students about it?

Participant 7: No.

Question: There is no real space in your discipline or anywhere else where you can say let's talk about of find an awareness campaign or something to say what they should be doing?

Participant 7: No, even with the students with the subjects I am teaching, the only time that the word breast comes up is if they need to be doing a technique and I have to ask consent that if my hand brush against your breast while I am doing this, do I have consent to touch you and that is it. There is no other space that gives the opportunity to speak about breast health.

Question: We are trying to think where we can find a space for students and even us reaching patients, reaching more people saying, somewhere amongst your discipline saying okay well if we are talking about consent, maybe we should ask is there any problems or do you do other tests.

Participant 7: I think that is the thing, we don't think about those things.

Page 345

Question: I am trying to just figure out in discipline, is there space in which of our disciplines we need to be doing it. Is it just the people doing mammograms, just the nursing people, or would you reach more people if we were able to incorporate it into other disciplines.

Participant 7: Definitely, if we had it in particularly the subjects I am teaching, might not have that explicit space, but definitely in the other sections that women's health, where they have been taught antenatal classes. I am not sure that it is included.

Question: There is now a subject in women's health. It is easier for me to figure out if there is a space, you know if I want to recommend something where will I try and find it.

Participant 7: In women's health definitely.

Question: It might just pop up there somehow even if you just give a note.

Participant 7: Definitely.

Question: When you did my questionnaire, did you find anything of interest or that you find has triggered your interest.

Participant 7: Yes, it has made me aware of what I said earlier on, ever after filling it out I did not do a self check, I did not read up on anything further, nothing like that, so I think filling the questionnaire and then I said yes, however there is closing the questionnaire there is would you be interested in it further, yes.

Question: So that was easy enough?

Participant 7: Yes, it was perhaps had I more exposure in my life, now to information at my information at my fingertips, I just need to search, but because in my family there is hypertension, there is cholesterol and diabetes. Those are in my face every single time, so I do regulations on my blood pressure to make sure that my cholesterol levels because I am such a high risk, because from both maternal and paternal, even amputations have been in the family so because it is the thing is my whole closed knit home environment and perhaps that is why I have been so proactive about breast health because it is a bit further out. There is that feeling that had it been vice versa I might not have been checking my blood pressure regularly or my sugar levels but checking my breast health and make sure I just do my checks. I have read that people who are doing elective mastectomy, it is because there is a family history of breast cancer and then they would opt to remove their breast to reduce their chances. So sometimes when it is closer to home, it propels us to actually do more.

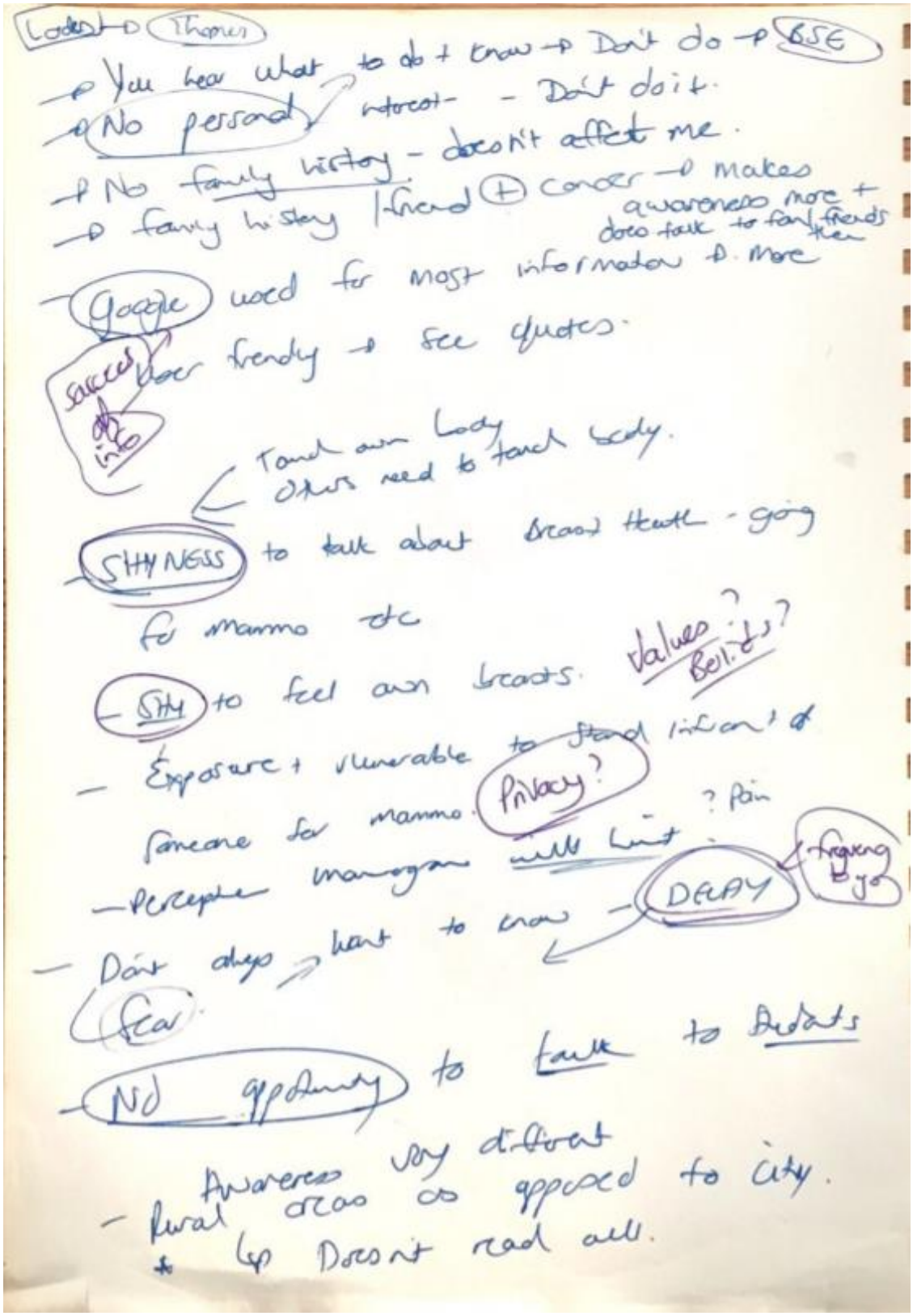
Question: That is a very valid point, you are less invested in breast health because you have a family history and less factors for breast cancer for instance, so it is then to say if it hits my closer home, you know if it is something I deal with daily I am more aware of it, I am more scared of it actually.

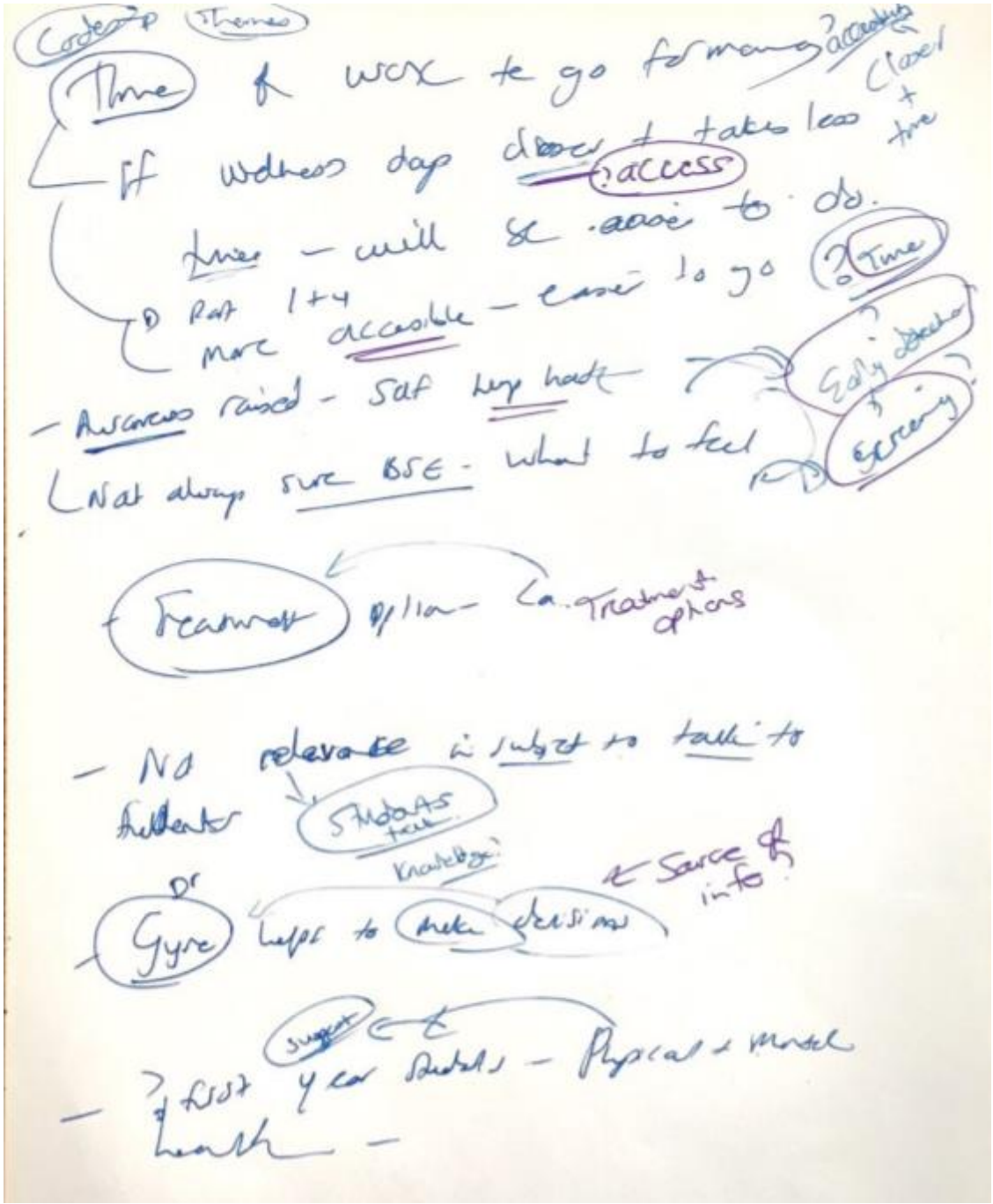
Participant 7: Yes it does, it plays with the mind actually, perhaps normally I know about it but I just don't do it, but then I think okay my grandparents have type 2 diabetes, they are doing this, they are on medication for this, chronic medication and then I will be checking, I have to check all these things. I think that is the real reason.

Question: So that plays an important role actually.
Participant 7: Yes.

Page 5 of 5

Example of codes emerging to sub-themes which led to the themes





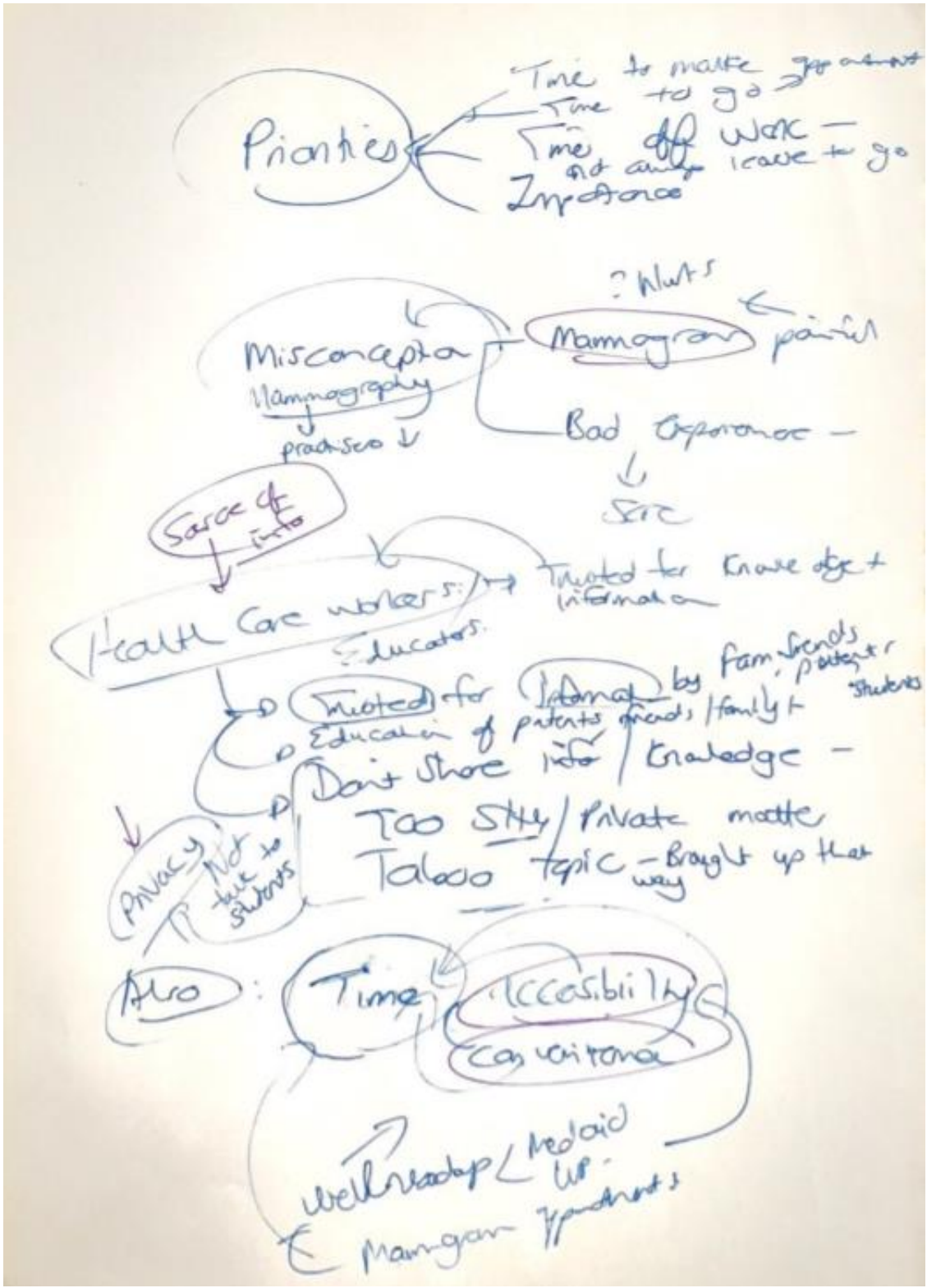


Table illustrating qualitative coding

5.3 Theme 1: Importance of Breast Health		
Sub-themes	**Categories**	**Codes**
5.3.1 Practising of screening tests	5.3.1.1 BSE	• Don't always feel something • Not sure what to feel for • Maybe once a month • Once in a while • Dense breast • State of breast • Know what to do but don't do it • BSE is done irregularly, when remembering to do so
	5.3.1.2 Mammography	• Mammogram painful • Not sure of the cost • Too young • Too much effort • Not as painful as though it would be • Previous bad experience from a friend discouraged going for a mammogram
	5.3.1.3 Frequency of screening tests	• Needs rewards/ incentive to do regularly • BSE doesn't always help, Mammogram might detect something • All women are at risk of breast cancer, therefore need to adhere to screening

5.3.2 Reasons for delaying issues regarding breast health	5.3.2.1 Time	• Too busy • Travel time to go to Mammography Centre • Waiting time at Mammography Department
	5.3.2.2 Worry about results	• Some people do worst case scenario • False positive causes stress • Fear of something being wrong
	5.3.2.3 Priorities	• Carelessness • Other things are more important • Neglect own wellbeing • Stopped self-checking
5.3.3 Early detection of breast cancer	5.3.3.1 Beneficial outcomes	• Risk of not screening bigger than not screening • Money saver/ can shorten treatment regime • Prevention is better than treatment • The sooner they find a problem, the better the outcome
	5.3.3.2 Family history	• Genetic disposition makes you more aware of breast cancer • Important to do screening tests with positive family history • Personal interest
	5.3.3.3 Faith in treatment	• Treatment options very invasive/ not sure how to choose • Treatment can affect quality of life • Too little information on treatment

		• Assumption that health care people know when they also don't know • Radiation danger • When to stop treatment
5.4 Theme 2: Information on Breast Health		
Sub-themes	**Categories**	**Codes**
5.4.1 Health care providers	5.4.1.1 Awareness campaigns and Wellness days	• Ask Gynaecologist/ Radiologist for advice. • Clinic sister is the first person you sometimes see and ask for advice • Reminder of breast cancer • Some Mammography departments advertise to go for a mammogram • Awareness of risk factors would be helpful • Would be better if done more regularly than only October. • Campaigns need to be more striking in the severity of the disease • Not presented on all campuses. • No time to attend • No participation
5.4.2 Sources	5.4.2.1 Google	• CDC website found to be useful • Search information when a friend felt a lump

		• Searched information on risk factors when received the online questionnaire from this research • Google is easier to find information • Do not really look for information
	5.4.2.2 Online academic databases	• Does not really use it • Can be too comprehensive • Not always in the mood to look there
	5.4.2.3 Magazines	• Women's magazines sometimes also support awareness campaigns • Find the information in the magazines more understandable
5.5 Theme 3: Discussion of Breast Health		
Sub-themes	**Categories**	**Codes**
5.5.1 Healthcare educators	5.5.1.1 Students	• No opportunity to talk to students • Not relevant to class • Not part of job description • Does not fit into the subject material • Never thought of talking to students about breast health • If students are more aware, it can encourage them to talk to patients • Don't talk to students because of the severity of cancer • Too embarrassing to talk to students about breast health

	5.5.1.2 Colleagues	• When some trigger arises like the questionnaire, it creates opportunity to talk to colleagues • Only started talking after being diagnosed
5.5.2 Social setting	5.5.2.1 Family members	• Due to family history, the topic arises to talk to other family members
	5.5.2.2 Friends	• More relevant to talk to a friend, especially when you have other friends diagnosed with breast cancer
5.6 Theme 4: Accessing Breast Health Services		
Sub-themes	**Categories**	**Codes**
5.6.1 Usefulness of support	5.6.1.1 UP-Wellness day	• Aware of it but does not make time to go • Make it more interesting or rather send factoids online
	5.6.1.2 Medical aid wellness day	• No time to go • Sometimes overinforms • Hoping other would go rather than self • Would be helpful if they assist in making appointments which would force you to go
	5.6.1.3 Convenience	• Not presented on all campuses, therefore ads travel time • Always find excuses for not going

	5.6.1.4 Prioritising	• Don’t make time to go although it sometimes looks interesting
5.7 Theme 5: Accessing Breast Health Services		
Sub-themes	**Categories**	**Codes**
5.7.1 Psychosocial factors	5.7.1.1 Privacy intrusion	• Privacy not maintained when went for a mammogram • Mammogram very personal examination • Not discussing private parts with other people/ students • Not comfortable when people touch and feel
	5.7.1.2 Shyness	• Shy to go for a mammogram • Shy to do BSE • Shy about own body
	5.7.1.3 Upbringing	• Taught not to talk about private matters when growing up • Stigma exists that you do not discuss private area matters with others